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ABSTRACT

Ten units on the world of construction and twelve units on carpentry are presented in this teacher's guide. The construction units include the following: safety; human relations in the shop; grooming and hygiene; hand tools; measurement; portable power tools, stationary power tools; fastening devices; and job application and interview. The carpentry units include the following: reading plans and sketches; materials; layout; framing-wood joints; framing; roofing; exterior wall coverings; exterior trim; hardware; door and window units; insulation and drywall; and ceiling tile and wall paneling. Each instructional unit generally contains eight components: performance objectives; an outline of minimum instructor and student activities to accomplish unit objectives; information sheets presenting basic unit content; transparency masters; job sheets which outline skills to be achieved; student assignment sheets related to the unit information sheets (answer sheets are provided); and objective tests with answer sheets. (JH)

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GENERAL CONSTRUCTION TRADES

Volume I
TEACHER'S GUIDE

MATERIALS DEVELOPED AND DISTRIBUTED BY

Occupational Curriculum Laboratory
Secondary and Higher Education
East Texas State University
Commerce, Texas

IN COOPERATION WITH

Texas Education Agency
Occupational Education and Technology
Austin, Texas

CE 021 535

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FIRST EDITION

1978

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FOREWORD

The Occupational Curriculum Laboratory at East Texas State University is striving to provide needed curriculum materials to vocational instructors within the state. Because of the number of programs within the General Construction Trades teaching areas, we have chosen to develop and disseminate this publication at this time.

The purpose of this publication is to assist instructors in improving instruction. As these materials are used, it is hoped that student performance will improve and that students will be better prepared to assume a role in a construction occupation.

Instructional materials in this publication are written in terms of student performance using measurable objectives. This is an innovative approach to teaching that accents and augments the teaching-learning process. Criterion-reference evaluation instruments are provided for a uniform measurement of student progress. In addition to evaluating recall information, teachers are encouraged to evaluate the other areas, including process and product,as indicated at the end of each instructional unit.

Every effort has been made to make this publication basic, readable, and, by all means, usable. Three vital areas of instruction (motivation, personalization, and localization) are not included in this publication and should be capitalized on by the instructor. Only then will this publication really become a vital part of the teaching-learning process.

USE OF THE INSTRUCTIONAL UNITS

The General Construction Trades instructional units cover certain instructional areas in the shop program. Each instructional unit includes most or all of the basic components of a unit of instruction: performance objectives, suggested activities, information sheets, assignment sheets, job sheets, transparency masters, unit tests, and answers to unit tests. Units are planned for more than one classroom period of instruction.

Careful study of each instructional unit will enable the teacher to determine:

A. The amount of material that can be covered in each class period

B. The skills that must be demonstrated

C. The supplies and equipment needed for skill performance

D. The amount of classroom time needed for teacher demonstration and student practice

E. Supplementary materials that must be ordered

F. Any resource personnel who must be contacted

The specific components of an instruction unit perform the following functions.

OBJECTIVES

Each unit of instruction is based on performance objectives. These objectives specify the exact behaviors the students will be exhibiting, thus providing students with a sense of direction.

Performance objectives are stated in two forms. The unit objectives state the materials to be covered in the unit of instruction and how the student will handle the material. Specific objectives state the types of performance the student will be doing to satisfy the unit objective.

A classroom discussion should follow immediately after the students read the objectives so that any questions concerning the performances expected of the student can be answered.

SUGGESTED ACTIVITIES

Each unit of instruction has a suggested activities sheet outlining steps to follow in accomplishing specific objectives.

Instructor--Duties of the instructor will vary from unit to unit, but the following are minimum activities for the instructor:

1. Provide students with objectives, information, assignment and/or job sheets
2. Discuss objectives and information sheets
3. Make transparencies
4. Demonstrate procedures outlined on job sheets (when included)
5. Give test
6. Review students' weak areas pointed out by the test

Any additional instructional activities and teaching methods to aid students in accomplishing the objectives are strongly encouraged.

Student--Student activities are listed to help the student achieve the objectives of the unit.

INFORMATION SHEET

Information sheets provide content essential for meeting the cognitive requirements of the unit. These sheets provide an excellent guide for presenting knowledges necessary to develop the skills specified in the unit objective.

Students should read the information sheets before the information is discussed in class. Students are encouraged to make any additional notes on the information sheets to help them in their learning process.

TRANSPARENCY MASTER

Transparency masters provide information in a special way. Transparencies may present new information, or they may reinforce information presented in the information sheets. They are particularly effective when identification is necessary.

Make the transparencies from the masters and place them in your notebook ready for immediate use.

Copies of transparency masters can be made and used as student handouts to supplement the material contained in the information sheet.

JOB SHEETS

Job sheets are an integral part of each unit of instruction. The instructor should be able to demonstrate the skills outlined in the job sheets. Procedures specified in the job sheets give direction to the skill being taught and allow both student and teacher to check student progress in performing the skill. Job sheets provide a ready outline to students and furnish to potential employers a picture of the types of skills being taught. Job sheets may be used as an individual or teamwork project.

ASSIGNMENT SHEETS

Assignment sheets give direction to study and furnish activities which provide application of the knowledges contained in the information sheet. These may be given to the student for completion in class or used for homework assignments. Answer sheets are provided for checking student progress.

UNIT TEST

Unit test questions have been constructed to measure student achievement of each specific objective listed on the objectives sheet. Individual test items may be pulled out and used as an objective. This kind of testing may be used as a daily quiz and will help the teacher spot difficulties being encountered by students in their efforts to accomplish the terminal objective.

ANSWERS TO UNIT TEST

Test answers are provided for each unit. These may be used by the teacher and/or student for checking student achievement of the objectives.

PERSONALIZING AND LOCALIZING INSTRUCTIONAL UNITS

Carefully review the instructional units before using the unit in the classroom. In reviewing the units, you may find it necessary to localize and personalize the units based upon the needs of your students.

Some of the ways of supplementing units are the use of audio-visual, attention-getters, field trips, resource personnel, games and simulations, case studies, peer teaching, role playing, and personal experiences of both the teacher and students.

Various methods may be used in localizing a unit of instruction. You may wish to apply units of instruction to the local community, add additional materials from newspapers and magazines, invite local resource people, and arrange field trips.

In personalizing a unit of instruction, you may want to make the course content relevant to home and/or work situations. You may wish to involve students in the planning of the unit by using their own personal experiences. Having students involved in the teaching of some of the materials is sometimes an effective example of peer teaching.

Remember that an an instructor, you may wish to add any objectives to the units of instruction based on the individual needs of the student. If this procedure is followed, you must add any assignment or jobs sheets as deemed necessary and construct a corresponding unit test item.

UNIT I

INTRODUCTION

UNIT OBJECTIVE

After completing this unit, the student will be able to identify the terms, areas of instruction, policies and regulations, the Social Security program, and occupational information relating to the construction trades program. This knowledge will be evidenced through demonstration and by successfully completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match the introductory terms used in General Construction Trades to the correct definition
2. List the areas of instruction involved in General Construction Trades
3. Point out the correct policies and regulations to be followed
4. Explain the Social Security system
5. Point out the types of jobs in construction, the nature of work, the qualifications for construction jobs, and the opportunities in construction
6. Fill out an application for a Social Security number
7. Fill out an application for a duplicate card

UNIT I

INTRODUCTION

SUGGESTED ACTIVITIES

I. Instructor:

- A. Provide students with objective sheet
- B. Provide students with information and assignment sheets
- C. Make transparency
- D. Discuss unit and specific objectives
- E. Show and discuss transparency
- F. Discuss information and assignment sheets
- G. Have students secure Social Security applications
- H. Have students complete assignment sheets

II. Student:

- A. Read objective sheet
- B. Study information sheet and ask questions
- C. Complete assignment sheets
- D. Take test

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objective sheet
- B. Information sheets
  1. Information Sheet #1--Classroom Terminology
  2. Information Sheet #2--Policies and Regulations
  3. Information Sheet #3--Understanding Social Security
  4. Information Sheet #4--Construction Jobs

C. Transparency master

  1. I-TM-1--Social Security Form

D. Assignment sheets

  1. Assignment Sheet #1--Application for a Social Security Number

  2. Assignment Sheet #2--Application for a Duplicate Card

E. Answers to assignment sheets

F. Unit test

G. Answers to test

II. References:

A. Hophe, William E. Encyclopedia of Careers and Vocational Guidance. Chicago: J. H. Ferguson Publishing Co., 1972.

B. Occupational Curriculum Laboratory. Instructor's Guide: An Introduction to Shop and Laboratory Teaching, 7th ed. Commerce, Texas: East Texas State University, 1977.

C. Occupational Outlook - Current Edition.

D. U.S. Department of Labor. Dictionary of Occupational Titles, Vol. I, 3rd ed. Washington, D.C.: U.S. Government Printing Office, 1965.

E. School Handbook

UNIT I

INTRODUCTION

INFORMATION SHEET #1--CLASSROOM TERMINOLOGY

I. Terms and definitions

  A. CVAE--Coordinated Vocational-Academic Education

  B. Orientation--Becoming familiar with classmates, shop policies and information, type of work involved, and responsibilities

  C. Attitude--The manner of acting, feeling, or thinking that shows a person's personality

  D. Credit--The certification of a student's successful completion of a unit or course of study

  E. Discipline--A system of rules governing conduct and activities

  F. FICA--The Federal Insurance Contributions Act

  G. Objective sheets--State the types of performance the student will do to satisfactorily complete the unit

  H. Information sheets--Provide the information necessary to complete the unit and space to make any additional notes

  I. Assignment sheets--Provide activities which will help relate the information provided by the information sheets

  J. Job sheets--Provide a list of items and procedures necessary to perform a skill

  K. Test--A device used to spot any difficulties the student is having in trying to complete the unit

II. Areas of Instruction

  A. Orientation to the World of Construction

  B. Carpentry

  C. Masonry

  D. Concrete and cement finishing

E. Electrical wiring

F. Painting

G. Plumbing

UNIT I

INTRODUCTION

INFORMATION SHEET #2--POLICIES AND REGULATIONS

III. School policies

   A. Local policies

      (Note: The student should become acquainted with these policies through your instructor or principal.)

      1. Grading system
      2. Report card time periods
      3. Excused and unexcused absences
      4. Schedule changes
      5. Extended illnesses and doctors' statements
      6. "Make up" policy for school work missed
      7. Class attendance, hall passes, and tardy policies
      8. Suspension and expulsion
      9. Exemption program guidelines

   B. Proper dress for males

      1. Extreme styles of clothing, hair, and jewelry should be avoided.
      2. Shirts with tails should be tucked into the trousers.
      3. A belt should be worn if the shirt is inside the trousers.
      4. Socks must be worn at all times.
      5. Trousers should not be frayed or torn.
      6. Insignias for the military or other non-school-related emblems should not be worn.

C. Proper dress for females

1. A dress should be decent and appropriate for school.
2. Dress length should reflect the individual's personal modesty.
3. Undergarments should be worn with thin or "see through" clothing.
4. Pantsuits are acceptable if they are feminine in appearance.
5. Wearing of blue jeans depends upon local school regulations.

D. General policies

1. Smoking is not permitted in any school buildings or on the school campus.
2. Students should park in the area reserved for student parking.
3. Chewing gum is not permitted in the buildings.
4. Running in the halls or stairways is not permitted.
5. Destroying or defacing school property can result in the student's being expelled or suspended from school.

E. Shop policies

1. Students should keep up with their assignments and responsibilities.
2. Students are responsible for cleaning up any equipment they use.
3. Students should record and pay for any shop supplies used.
4. Work areas should be kept clean and orderly.
5. Any faulty equipment should be unplugged and the instructor notified.
6. Any faulty wiring should be reported to the instructor, and any unused equipment should be unplugged.
7. Students should take part in shop activities and will be graded accordingly.

UNIT I

INTRODUCTION

INFORMATION SHEET #3--UNDERSTANDING SOCIAL SECURITY

IV. Social Security

- A. History and purpose
  - 1. Government-sponsored program
  - 2. Supervised by the Bureau of Old Age and Survivor's Insurance
  - 3. Employees are entitled to benefits from the program.
  - 4. Employer and employee both contribute to the program on a percentage basis.
  - 5. Provisions for partial payment are made due to loss of earnings.
  - 6. Individual numbers are issued to insure proper credit.
- B. Securing a Social Security Application Form
  - 1. Obtained from the office of the Social Security Administration
  - 2. Obtained from any post office
  - 3. Have your instructor check your application for the correct information.
- C. Social Security card
  - 1. The card will be sent when the Social Security Office receives the application.
  - 2. The card will have your identification number, which is used to record an employee's earnings, tax payments, and benefits.
  - 3. The number should be memorized for later use.
  - 4. The card should be signed immediately.

5. The number can also be used for identification.

   (Note: Used on income tax returns, bank records, military service records, and other important records.)

6. Some schools and businesses use it as an identification number.

7. If the card is lost, request a new one on an application form.

   (Note: Do not request a new number.)

UNIT I

INTRODUCTION

INFORMATION SHEET #4--CONSTRUCTION JOBS

V. Occupational Information

A. Jobs in construction

1. Wood--Jobs in which a builder builds things with wood.

2. Metal--Jobs in which workers shape or build things from metal.

3. Masonry--Jobs in which workers build things with brick, concrete blocks, cement, tile, or terrazzo.

4. Finishing--Jobs in which workers may decorate or finish a building, including painting, glazing, floor covering, landscaping, insulating, and roofing.

5. Electricity--Jobs in which workers install wiring systems, electrical fixtures, and electrical equipment.

6. Engineering, support, and management services--Jobs that require organizing and directing the efforts of others.

7. Heavy equipment--Jobs that require operating and maintaining cranes, bulldozers, graders, and other equipment in building.

8. Plumbing--Jobs in which workers install piping, fittings, and other gas or water equipment.

B. Nature of work

1. Involves working around many hazards

2. Involves working with others

3. Requires both inside and outside work during all weather conditions

(Note: At times, weather conditions will cause construction work to stop and people to be laid off.)

4. Involves moving heavy objects and endurance
5. Involves reading of blueprints and building codes

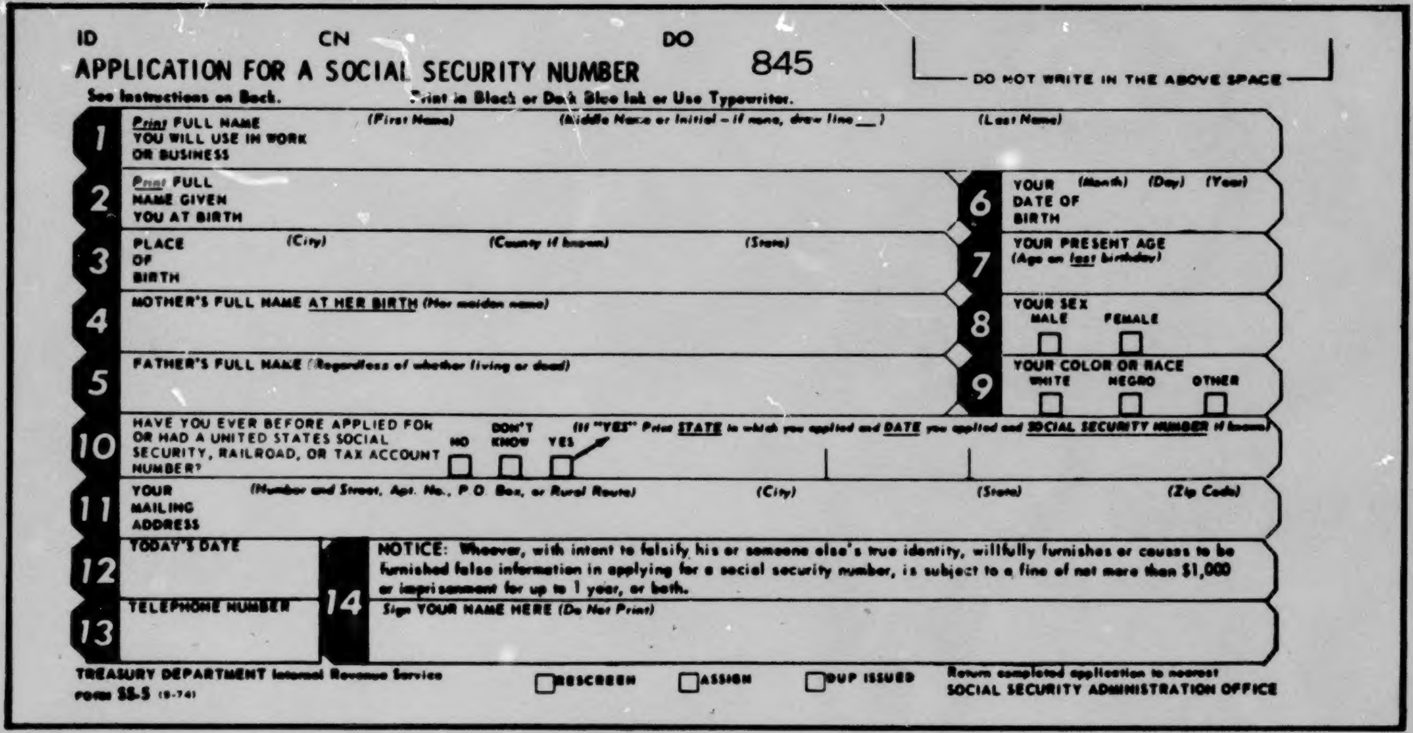
C. Qualifications for construction jobs

1. High school diploma and coursework
    a. Math and science background
    b. Woodworking and construction courses
    c. Drafting courses if possible
    d. Social studies and English knowledge
2. Advanced training
    a. Apprenticeship training program
    b. Vocational-technical school
3. Personal qualifications
    a. Physically capable
    b. Ability or knowledge to work with tools and materials of the trade
    c. A good attitude and ability to cooperately work with others
    d. Interest to learn and advance

D. Opportunities in construction

1. Job opportunities
    a. Construction is predicted to double in the next few years.
    b. A broad knowledge of construction allows a person to handle new construction, remodeling, maintenance, and repair.
2. Income opportunities
    a. Income is similar to that in other trades.
    b. A person experiences pride and satisfaction from good craftsmanship.
    c. There are unlimited high-paying positions.

APPLICATION FOR SOCIAL SECURITY NUMBER



ID CN DO 845

APPLICATION FOR A SOCIAL SECURITY NUMBER

DO NOT WRITE IN THE ABOVE SPACE

See Instructions on Back. Print in Black or Dark Blue Ink or Use Typewriter.

1 *Print* FULL NAME YOU WILL USE IN WORK OR BUSINESS (First Name) (Middle Name or Initial – if none, draw line __) (Last Name)

2 *Print* FULL NAME GIVEN YOU AT BIRTH

6 YOUR DATE OF BIRTH (Month) (Day) (Year)

3 PLACE OF BIRTH (City) (County if known) (State)

7 YOUR PRESENT AGE (Age on last birthday)

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name)

8 YOUR SEX MALE ☐ FEMALE ☐

5 FATHER'S FULL NAME (Regardless of whether living or dead)

9 YOUR COLOR OR RACE WHITE ☐ NEGRO ☐ OTHER ☐

10 HAVE YOU EVER BEFORE APPLIED FOR OR HAD A UNITED STATES SOCIAL SECURITY, RAILROAD, OR TAX ACCOUNT NUMBER? NO ☐ DON'T KNOW ☐ YES ☐ (If "YES" Print STATE in which you applied and DATE you applied and SOCIAL SECURITY NUMBER if known)

11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) (City) (State) (Zip Code)

12 TODAY'S DATE

14 NOTICE: Whoever, with intent to falsify his or someone else's true identity, willfully furnishes or causes to be furnished false information in applying for a social security number, is subject to a fine of not more than $1,000 or imprisonment for up to 1 year, or both.

13 TELEPHONE NUMBER

Sign YOUR NAME HERE (Do Not Print)

TREASURY DEPARTMENT Internal Revenue Service

Form SS-5 (9-74)

☐ RESCREEN ☐ ASSIGN ☐ DUP ISSUED

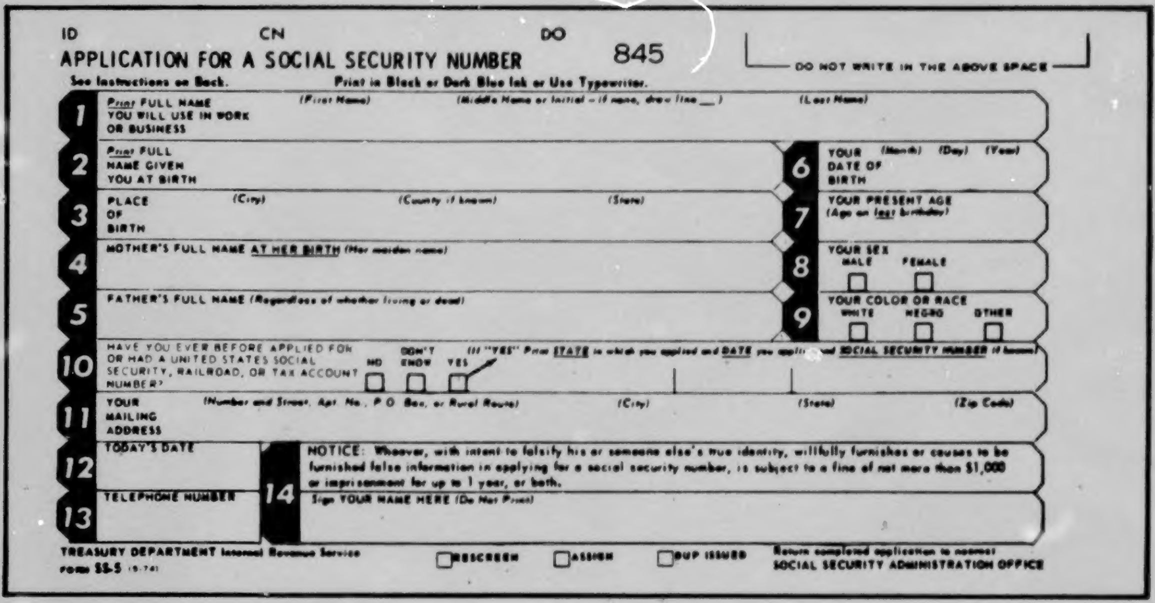
Return completed application to nearest SOCIAL SECURITY ADMINISTRATION OFFICE

UNIT I

INTRODUCTION

ASSIGNMENT SHEET #1--APPLICATION FOR SOCIAL SECURITY NUMBER

Directions: Using a dark blue or black ink pen, complete the application form by providing the correct information.



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2 *Print* FULL NAME GIVEN YOU AT BIRTH

3 PLACE OF BIRTH (City) (County if known) (State)

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name)

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9 YOUR COLOR OR RACE WHITE ☐ NEGRO ☐ OTHER ☐

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11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) (City) (State) (Zip Code)

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Sign YOUR NAME HERE (Do Not Print)

TREASURY DEPARTMENT Internal Revenue Service
FORM SS-5 (9-74)

☐ RESCREEN ☐ ASSIGN ☐ DUP ISSUED

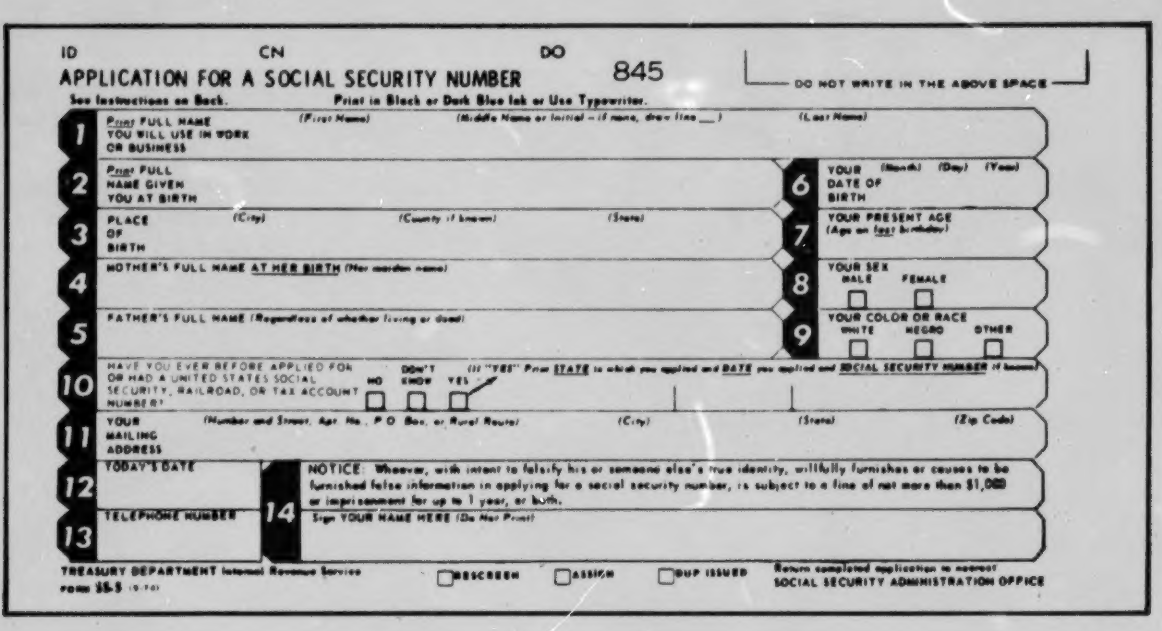
Return completed application to nearest
SOCIAL SECURITY ADMINISTRATION OFFICE

UNIT I

INTRODUCTION

ASSIGNMENT SHEET #2--APPLICATION FOR A DUPLICATE CARD

Directions: Using a dark blue or black ink pen, complete the following form in requesting a duplicate card.



ID CN DO 845

APPLICATION FOR A SOCIAL SECURITY NUMBER

DO NOT WRITE IN THE ABOVE SPACE

See Instructions on Back. Print in Black or Dark Blue Ink or Use Typewriter.

1 *Print* FULL NAME YOU WILL USE IN WORK OR BUSINESS (First Name) (Middle Name or Initial – if none, draw line __) (Last Name)

2 *Print* FULL NAME GIVEN YOU AT BIRTH

3 PLACE OF BIRTH (City) (County if known) (State)

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name)

5 FATHER'S FULL NAME (Regardless of whether living or dead)

6 YOUR DATE OF BIRTH (Month) (Day) (Year)

7 YOUR PRESENT AGE (Age on last birthday)

8 YOUR SEX MALE ☐ FEMALE ☐

9 YOUR COLOR OR RACE WHITE ☐ NEGRO ☐ OTHER ☐

10 HAVE YOU EVER BEFORE APPLIED FOR OR HAD A UNITED STATES SOCIAL SECURITY, RAILROAD, OR TAX ACCOUNT NUMBER? NO ☐ DON'T KNOW ☐ YES ☐ (If "YES" Print STATE in which you applied and DATE you applied and SOCIAL SECURITY NUMBER if known)

11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) (City) (State) (Zip Code)

12 TODAY'S DATE

13 TELEPHONE NUMBER

14 NOTICE: Whoever, with intent to falsify his or someone else's true identity, willfully furnishes or causes to be furnished false information in applying for a social security number, is subject to a fine of not more than $1,000 or imprisonment for up to 1 year, or both.

Sign YOUR NAME HERE (Do Not Print)

TREASURY DEPARTMENT Internal Revenue Service
FORM SS-5 (9-70)

☐ RESCREEN ☐ ASSIGN ☐ DUP ISSUED

Return completed application to nearest
SOCIAL SECURITY ADMINISTRATION OFFICE

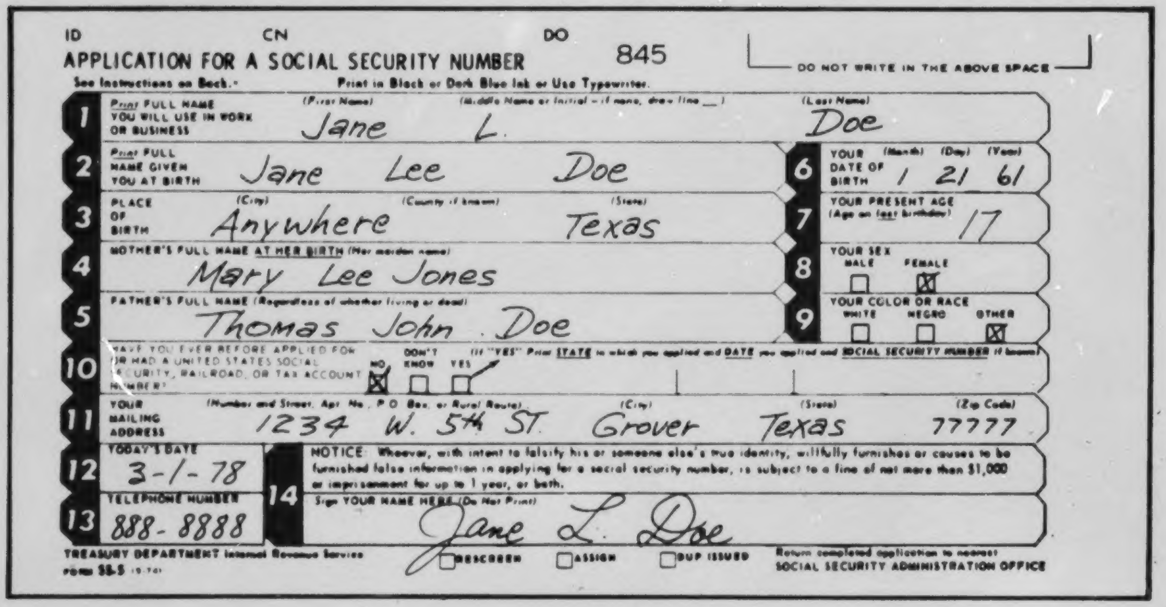
UNIT I

INTRODUCTION

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The completed form should be neatly printed and provide the following types of information:



ID CN DO 845

APPLICATION FOR A SOCIAL SECURITY NUMBER

DO NOT WRITE IN THE ABOVE SPACE

See Instructions on Back. Print in Black or Dark Blue Ink or Use Typewriter.

1 Print FULL NAME YOU WILL USE IN WORK OR BUSINESS (First Name) Jane (Middle Name or Initial – if none, draw line __) L. (Last Name) Doe

2 Print FULL NAME GIVEN YOU AT BIRTH Jane Lee Doe

3 PLACE OF BIRTH (City) Anywhere (County if known) (State) Texas

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name) Mary Lee Jones

5 FATHER'S FULL NAME (Regardless of whether living or dead) Thomas John Doe

6 YOUR DATE OF BIRTH (Month) 1 (Day) 21 (Year) 61

7 YOUR PRESENT AGE (Age on last birthday) 17

8 YOUR SEX MALE ☐ FEMALE ☒

9 YOUR COLOR OR RACE WHITE ☐ NEGRO ☐ OTHER ☒

10 HAVE YOU EVER BEFORE APPLIED FOR OR HAD A UNITED STATES SOCIAL SECURITY, RAILROAD, OR TAX ACCOUNT NUMBER? NO ☒ DON'T KNOW ☐ YES ☐ (If "YES" Print STATE in which you applied and DATE you applied and SOCIAL SECURITY NUMBER if known)

11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) 1234 W. 5th ST. (City) Grover (State) Texas (Zip Code) 77777

12 TODAY'S DATE 3-1-78

13 TELEPHONE NUMBER 888-8888

14 NOTICE: Whoever, with intent to falsify his or someone else's true identity, willfully furnishes or causes to be furnished false information in applying for a social security number, is subject to a fine of not more than $1,000 or imprisonment for up to 1 year, or both.

Sign YOUR NAME HERE (Do Not Print) Jane L. Doe

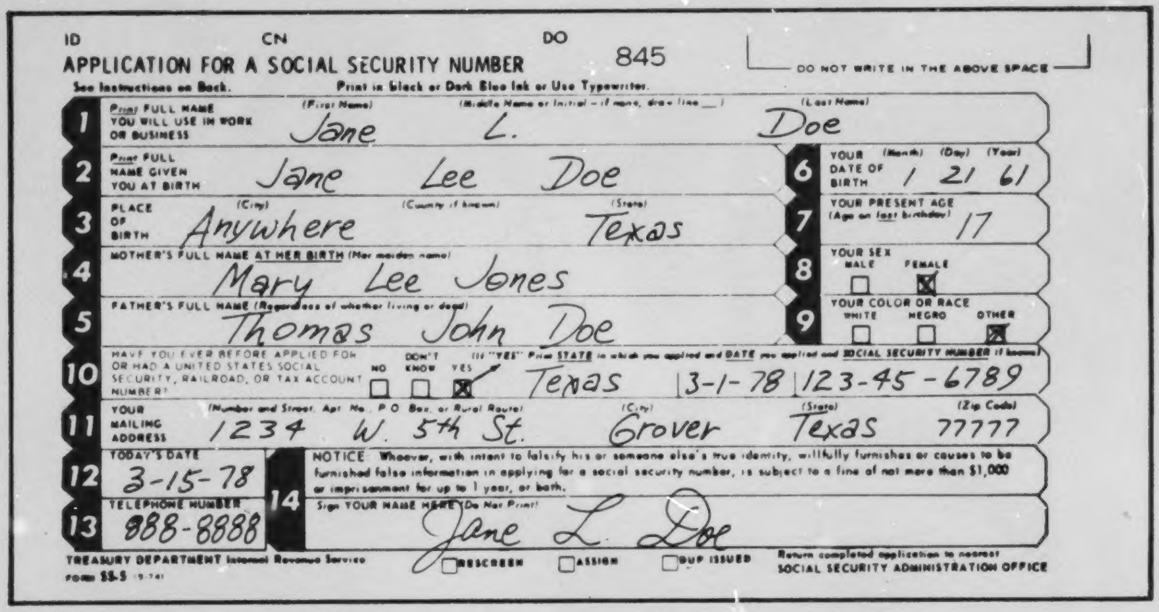
TREASURY DEPARTMENT Internal Revenue Service
Form SS-5 (9-74)

☐ RESCREEN ☐ ASSIGN ☐ DUP ISSUED

Return completed application to nearest SOCIAL SECURITY ADMINISTRATION OFFICE

Assignment Sheet #2

The completed form for requesting a duplicate card should be similar to the following:



ID
CN
DO 845

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See Instructions on Back.
Print in Black or Dark Blue Ink or Use Typewriter.

1 Print FULL NAME YOU WILL USE IN WORK OR BUSINESS (First Name) Jane (Middle Name or Initial – if none, draw line __) L. (Last Name) Doe

2 Print FULL NAME GIVEN YOU AT BIRTH Jane Lee Doe

3 PLACE OF BIRTH (City) Anywhere (County if known) (State) Texas

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name) Mary Lee Jones

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9 YOUR COLOR OR RACE WHITE ☐ NEGRO ☐ OTHER ☒

10 HAVE YOU EVER BEFORE APPLIED FOR OR HAD A UNITED STATES SOCIAL SECURITY, RAILROAD, OR TAX ACCOUNT NUMBER? NO ☐ DON'T KNOW ☐ YES ☒ (If "YES" Print STATE in which you applied and DATE you applied and SOCIAL SECURITY NUMBER if known) Texas | 3-1-78 | 123-45-6789

11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) 1234 W. 5th St. (City) Grover (State) Texas (Zip Code) 77777

12 TODAY'S DATE 3-15-78

13 TELEPHONE NUMBER 888-8888

14 NOTICE: Whoever, with intent to falsify his or someone else's true identity, willfully furnishes or causes to be furnished false information in applying for a social security number, is subject to a fine of not more than $1,000 or imprisonment for up to 1 year, or both.

Sign YOUR NAME HERE (Do Not Print) Jane L. Doe

TREASURY DEPARTMENT Internal Revenue Service
FORM SS-5 (9-74)

☐ RESCREEN ☐ ASSIGN ☐ DUP ISSUED

Return completed application to nearest SOCIAL SECURITY ADMINISTRATION OFFICE

UNIT I

INTRODUCTION

UNIT TEST--PART 1

1. Match each of the following terms with the correct definition.

____a. Coordinated Vocational-Academic Education

____b. Becoming familiar with classmates, shop policies and information, type of work involved, and responsibilities

____c. The manner of acting, feeling, or thinking that shows a person's personality

____d. The certification of a student's successful completion of a unit or course of study

____e. A system of rules governing conduct and activities

____f. The Federal Insurance Contributions Act

____g. States the types of performance the student will do to satisfactorily complete the unit

____h. Provide the information necessary to complete the unit and space to make any additional notes

____i. Provide activities which will help relate the information provided by the information sheets

____j. Provide a list of items and procedures necessary to perform a skill

1. Information sheets
2. Objective sheet
3. FICA
4. Orientation
5. CVAE
6. Attitude
7. Test
8. Job sheets
9. Assignment sheets
10. Discipline
11. Credit

____k. A device used to spot any difficulties the student is having in trying to complete the unit

2. List the areas of instruction involved in General Construction Trades.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

UNIT I

INTRODUCTION

UNIT TEST--PART 2

3. Point out the correct policies and regulations by

   a. Writing a short description of each of the following school policies:

      (1) Grading system

      (2) Report card time periods

      (3) Excused and unexcused absences

      (4) Schedule changes

      (5) Extended illness and doctor statements

      (6) "Make up" policy for school work missed

      (7) Class attendance, hall passes, and tardy policies

      (8) Suspension and expulsion

      (9) Exemption program guidelines

   b. Mark each of the statements concerning proper dress for males as true or false.

____(1) Extreme styles of clothing, hair, and jewelry should be avoided.

____(2) Shirts with tails may be worn in or outside the trousers.

____(3) A belt should be worn if the shirt is inside the trousers.

____(4) Socks do not have to be worn.

____(5) Trousers should not be frayed or torn.

____(6) Military insignias should be worn on clothing.

c. Mark each of the statements concerning proper dress for females as true or false.

____(1) A dress should be indecent and inappropriate for school.

____(2) Dress length should reflect the individual's personal modesty.

____(3) Undergarments should be worn with thin or "see through" clothing.

____(4) Pantsuits are appealing if they are masculine in appearance.

____(5) Wearing of blue jeans depends on local school regulations.

d. Mark each of the statements concerning general policies as true or false.

____(1) Smoking is permitted in any school building or on any school campus.

____(2) Students should park in the area reserved for bus parking.

____(3) Chewing gum is permitted in the buildings.

____(4) Running in the halls or stairways is permitted.

____(5) Destroying or defacing school property can result in extra credit.

e. Mark each of the statements concerning shop policies as true or false.

____(1) Students should keep up with their assignments and responsibilities.

____(2) Students should clean up only the equipment they are using at the end of the day.

____(3) Students should record and pay for any shop supplies used.

____(4) Work areas should be kept clean and orderly.

____(5) Any faulty equipment should be used very carefully.

____(6) Any faulty wiring should be ignored.

____(7) Students should take part in shop activities and will be graded accordingly.

UNIT I

INTRODUCTION

UNIT TEST--PART 3

4. Explain the Social Security system by underlining the words that correctly complete each of the following.

   a. The (union, government) sponsors the Social Security program.

   b. It is supervised by the Bureau of (Old Age and Survivor's Insurance, Welfare).

   c. (Employers, Employees) are entitled to benefits of the program.

   d. Employer and employee both contribute to the program on a (10 to 1, percentage) basis.

   e. Provisions for partial payment are made due to loss of (house, earnings).

   f. Individual numbers are issued to insure proper (credit, earnings).

   g. Social Security application forms may be obtained from the office of the Social Security Administration and from your local (bank, post office).

   h. You should have your (doctor, instructor) check the application for the correct information.

   i. The card will be sent when the Social Security office receives (the application, your money).

   j. The card will have your identification number, which is used to record an employee's earnings, tax payments, and (benefits, sick leave).

   k. The number should be (forgotten until needed, memorized for later use).

   l. The card should be signed (immediately, in the near future).

   m. The number can also be used for (car tags, identification).

   n. Some schools and businesses use it as (an identification number, layoff selection system).

   o. If the card is lost a new (card, number) should be requested.

UNIT I

INTRODUCTION

UNIT TEST--PART 4

5. Point out the types of jobs in construction, the nature of work, the qualifications for construction jobs, and the opportunities in construction by answering each of the following questions.

   a. Match the correct description to each of the following construction areas.

      Heavy equipment

      Electricity

      Finishing

      Metal

      Plumbing

      Engineering, support, and Management services

      Masonry

      Wood

      ______________________ (1) Jobs in which a builder builds things with wood.

      ______________________ (2) Jobs in which workers shape or build things from metal.

      ______________________ (3) Jobs in which workers build things with brick, concrete blocks, cement, tile, or terrazzo.

      ______________________ (4) Jobs in which workers may decorate or finish a building, including painting, glazing, floor covering, landscaping, insulating, and roofing.

      ______________________ (5) Jobs in which workers install wiring systems, electrical fixtures, and electrical equipment.

      ______________________ (6) Jobs that require organizing and directing the efforts of others.

______________________(7) Jobs that require operating and maintaining cranes, bulldozers, graders, and other equip-in building.

______________________(8) Jobs in which workers install piping, fittings, and other gas and water equipment.

b. Place a "✓" in front of each of the following conditions in which construction people work.

____(1) Involves working around many hazards.

____(2) Involves working alone at all times.

____(3) Requires both inside and outside work during all weather.

____(4) Involves moving heavy objects and endurance.

____(5) Involves holding your breath for long periods of time.

____(6) Involves reading of blueprints and building codes.

c. List the three qualification areas for construction jobs.

(1)

(2)

(3)

d. Circle the answer which will correctly complete each sentence involving opportunities in construction.

(1) Construction is predicted to (stop, double) in the next few years.

(2) A (broad, limited) knowledge allows a person to handle new construction, remodeling, maintenance, and repair.

(3) Income for construction work is (less than, similar) to that in other trades.

(4) A person experiences (pride and satisfaction,

a bad feeling) from good craftsmanship.

(5) There are (limited, unlimited) high-paying positions.

6. Fill out an application for a Social Security number.

7. Fill out an application for a duplicate card.

(Note: If these activities have not been accomplished prior to the test, ask the instructor when they should be completed.)

UNIT I

INTRODUCTION

ANSWERS TO TEST
PART 1

1. a. 5
   b. 4
   c. 6
   d. 11
   e. 10
   f. 3
   g. 2
   h. 1
   i. 9
   j. 8
   k. 7

2. a. Orientation to the world of construction
   b. Carpentry
   c. Masonry
   d. Concrete and cement finishing
   e. Electrical wiring
   f. Painting
   g. Plumbing

PART 2

3. a. An acceptable answer should include information of each of these policies enforced at the local school.
   b. (1) true

(2) false

(3) true

(4) false

(5) true

(6) false

c. (1) false

(2) true

(3) true

(4) false

(5) true

d. (1) false

(2) false

(3) false

(4) false

(5) false

e. (1) true

(2) false

(3) true

(4) true

(5) false

(6) false

(7) true

PART 3

4. a. government

b. Old Age and Survivor's Insurance

c. Employees

d. percentage

e. earnings

f. credit

g. post office

h. instructor

i. the application

j. benefits

k. memorized for later use

l. immediately

m. identification

n. identification number

o. card

PART 4

5. a. (1) Wood

(2) Metal

(3) Masonry

(4) Finishing

(5) Electricity

(6) Engineering, support and management

(7) Heavy equipment

(8) Plumbing

b. (1) ✓

(2)

(3) ✓

(4) ✓

(5)

(6) ✓

c. (1) High school diploma and course work

(2) Advanced training

(3) Personal qualifications

d. (1) double

(2) broad

(3) similar

(4) pride and satisfaction

(5) unlimited

6. Evaluated to the satisfaction of the instructor.

7. Evaluated to the satisfaction of the instructor.

UNIT II

SAFETY

UNIT OBJECTIVE

After completing this unit, the student will be able to define safety, state the individual, group, and general safety rules, and apply these to situations in the construction field. This knowledge will be evidenced through demonstration and by scoring 100% on a unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student will be able to:

1. Explain safety as it applies to an individual.
2. Point out the importance of good safety attitudes.
3. Point out the ways you can practice personal safety.
4. Discuss three ways you can practice group safety.
5. Select the correct safety rules to be followed in the shop.
6. Select the proper clothing and personal protective equipment.
7. Select the correct safety rules to follow when using hand tools.
8. Select the correct safety rules to follow when using power tools.
9. Select the correct safety rules associated with fire safety.
10. Point out the class of fires according to the materials that will burn.
11. Point out the types of fire extinguishers and methods of use.
12. Select the correct procedures for evacuating the building in case of a fire.
13. Complete a safety project.

14. Complete a student safety pledge form before working with any tools or machinery.

15. Select the proper safety attitudes for construction workers.

16. Select the proper safety factors for construction work.

17. Match the correct safety terms to construction situations.

18. Apply safety rules to shop situations.

19. Draw a building evacuation plan.

20. Explain what to do in case of a fire.

21. List things you can do to prevent fires in your class, community, and home.

UNIT II

SAFETY

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet

  B. Provide students with information and assignment sheets

  C. Make transparency

  D. Discuss unit and specific objectives

  E. Show and discuss transparency

  F. Discuss information and assignment sheets

  G. Have students complete assignment sheets

II. Student:

  A. Read objective sheet

  B. Study information sheet and ask questions

  C. Complete assignment sheets

  D. Take test

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

    1. Information Sheet #1--Safety and Your Attitude

    2. Information Sheet #2--Work Safety

    3. Information Sheet #3--What You Wear

    4. Information Sheet #4--Using Hand tools

    5. Information Sheet #5--Using Power Tools

    6. Information Sheet #6--Fire Safety

C. Transparency masters
  1. II-TM-1--Avoid Horseplay
  2. II-TM-2--Learn to Recognize Unsafe Conditions
  3. II-TM-3--Be Sure You have Proper Ventilation
  4. II-TM-4--Remember to Remove Dangerous Jewelry and Clothing
  5. II-TM-5--Type of Fire Extinguishers
  6. II-TM-6--Know Your Fire Extinguishers

D. Assignment sheets
  1. Assignment Sheet #1--Explaining Safety Rules
  2. Assignment Sheet #2--Student Safety Pledge Form
  3. Assignment Sheet #3--Selecting Safety Attitudes
  4. Assignment Sheet #4--Selecting Safety Factors
  5. Assignment Sheet #5--Matching Safety Terms and Situations
  6. Assignment Sheet #6--Safety Rule Application
  7. Assignment Sheet #7--Building Evacuation
  8. Assignment Sheet #8--What to Do In Case of Fire
  9. Assignment Sheet #9--Preventing Fires

E. Answers to assignment sheets

F. Unit test

G. Answers to test

II. References:

A. Henrich, H. W. Industrial Accident Prevention. 4th ed. Manchester, Missouri: McGraw-Hill Book Co., Webster Division, 1959.

B. Kigire, Denis J. Teacher Liability in School Shop Accidents. Ann Arbor, Michigan: Prokken Publications, Inc., 1963.

C. Occupational Curriculum Laboratory. Instructor's Guide: An Introduction to Shop and Laboratory Teaching. 7th ed. Commerce, Texas: East Texas State University, 1977.

D. Division of Occupational Safety. Occupational Safety and Health Standards. Austin: Texas State Department of Health.

E. Poster Director. National Safety Council, Chicago 1966-67.

F. School Shop Safety Manual. Board of Education of the City of New York, Brooklyn, 1965.

G. Williams, William A. Accident Prevention Manual For Shop Teachers. Chicago: American Technical Society, 1969.

UNIT II

SAFETY

INFORMATION SHEET #1--SAFETY AND YOUR ATTITUDE

I. Safety Explained

A. Freedom from accidents

B. OSHA (Occupational Safety and Health Act - 1970)

1. Assures every working man or woman in the nation safe and healthful working conditions and the preservation of our human resources

2. Provides organized accident-prevention programs in the school shops

C. General safety includes:

1. Attitudes
2. Personal safety
3. Group safety
4. Shop safety
5. Clothing and personal protective equipment
6. Hand tool safety
7. Power tool safety

II. Attitude

A. The proper attitude is a must in a General Construction Trades shop

B. Most accidents are caused by thoughtlessness

C. Each student must be on guard against accidents at all times

D. Visiting should be avoided because it distracts from a person's alertness which makes the individual accident prone

III. Personal Safety

A. Involves protecting yourself from injury caused

  B. Involves being aware of unsafe conditions and practices

  C. Involves protecting others by practicing your own personal safety

IV. Group Safety

  A. Includes the entire class

  B. Every student's actions can cause a reaction on you.

  C. You should stress classroom safety to your classmates.

UNIT II

SAFETY

INFORMATION SHEET #2--WORK SAFETY

V. Shop Safety

A. Avoid wrestling, throwing objects, and general horseplay

B. Provide a place for everything and keep everything in its place

C. Keep the arms and back as nearly straight as possible when lifting heavy objects

D. Never place objects on high places because they may fall and cause injuries

E. Do not leave slippery substances on floors because they may cause people to fall

F. Keep all work spaces clean of all materials to avoid stumbling or falling

G. Remove or bend down all protruding nails to eliminate the hazard of their being stepped on or brushed against

H. Notify your instructor of any known violations of safety rules or of conditions you think may be dangerous

I. Always cross-stack the load at intervals when loading trucks

J. Inspect ladders before using and remove any faulty ladders from use

(Note: Never paint a ladder.)

K. When using a ladder, be sure that the bottom rests on solid ground

L. Be familiar with the correct methods for erecting a scaffold

(Note: Always wear a safety belt when working on scaffolds.)

M. Replace faulty tools and equipment

N. Immediately report all accidents and report for first-aid treatment

O. Do not take chances!

UNIT II

SAFETY

INFORMATION SHEET #2--WHAT YOU WEAR

VI. Clothing and Personal Protective Equipment

A. Wear well-fitting carpenter's overalls and keep them in good repair.

B. Do not wear ragged sleeves, neckties, or loose clothing of any sort.

C. Roll your shirt sleeves above your elbows.

D. Wear thick-soled work shoes for protection against sharp objects.

E. Wear gloves when working with rough materials or sharp edges.

F. Wear a hard hat or cap and keep your hair trimmed to avoid getting it caught in rotating machinery.

G. Wear safety goggles around abrasive, scraping, or sawing equipment.

H. Wear a dust mask or respirator when working in dusty areas or spray painting areas.

UNIT II

SAFETY

INFORMATION SHEET #4--USING HAND TOOLS

VII. Hand Tool Safety

A. Always focus your full attention on the work.

B. Use the right tool for the right job.

C. Learn how to use the tool properly.

D. Keep tools in their best condition.

E. Keep each tool in its place.

F. When using sharp-edged tools, cut away from the body.

G. Keep sharp-edged tools away from the edge of a bench or work area.

H. Carry sharp-pointed tools with the cutting edge or point down.

I. Keep tools sharp and clean.

J. Always use a handle on a file.

K. Do not strike hardened metal or tools with a hard-faced hammer.

L. Avoid mushrooming or batter-heads of metal tools by keeping them ground smooth and square.

UNIT II

SAFETY

INFORMATION SHEET #5--USING POWER TOOLS

VIII. Power Tool Safety

A. Be sure all power tools are grounded with three-wire conductor cord.

B. Power tools should be inspected and serviced at regular intervals by qualified repairmen.

C. Know and understand all of the manufacturer's safety recommendations.

D. Be familiar with the operation procedures of the tool.

E. Inspect electrical cords to see that they are in good condition.

F. Do not leave electrical cords where they may be run over or damaged.

G. Be sure that all safety guards are in place and in working order.

H. Remove ties, rings, or wristwatches, and roll up long sleeves before using power tools.

I. Be sure that your hands are dry.

J. Make all adjustments and inspections with the power OFF and the cable DISCONNECTED.

K. Before connecting to a power source, be sure that the switch is in the OFF position.

L. Wear safety goggles and a dust mask when the work requires.

M. Be sure that the materials to be worked are free of obstructions and securely clamped.

N. Keep your attention focused on the work.

O. Change in sound during power-tool operation normally indicated trouble and should be investigated immediately.

P. When work is complete, shut off all power tools.

Q. When work is complete, disconnect the power tool from the power source.

R. After the tool is disconnected, remove blades, bits, or any other cutter from the tool.

S. Store power tools and blades, bits, or other cutters in their proper places.

T. When the power tool is defective, remove it from service.

UNIT II

SAFETY

INFORMATION SHEET #6--FIRE SAFETY

IX. General Rules

   A. Practice fire prevention.

   B. Find out what material is burning when a fire starts.

   C. Report a fire quickly.

   D. Know how to use a fire extinguisher

   E. Know the types of extinguishers

   (WARNING: Using the wrong type of extinguisher on a fire is dangerous.)

   F. Know the location of the fire alarm.

   G. Know how to treat burns.

   H. Keep a clean shop, with flammables stored properly.

   I. Know the correct way to leave a building in case of fire.

   (Note: If there is not a plan of how to leave the building in case of fire posted by the door, ask your instructor for instructions.)

   J. Be serious during fire drills because these may save your life.

X. Types of Fires

   A. Class A--Ordinary combustibles such as wood, paper or cloth

   B. Class B--Flammable liquids or grease such as gasoline, paints, or oils

   C. Class C--Electrical equipment such as motors and switches

XI. Types of Extinguishers

  A. Foam

    1. Used on Class A and B fires

    2. To use, turn extinguisher upside down.

    3. Spray so that foam falls on fire.

  B. Carbon dioxide

    1. Used on Class B and C fires

    2. To use, squeeze handle.

    3. Spray near the fire base and move upward.

  C. Soda acid

    1. Used on Class A fires

    2. To use, turn extinguisher upside down.

    3. Spray at the base of the fire.

  D. Water

    1. Used on Class A fires

    2. To use, squeeze handle

      (Note: A water hose or bucket may also be used.)

    3. Spray at the base of the fire.

  E. Dry chemical

    1. Use on Class A, B, and C fires

    2. To use, squeeze handle.

    3. Spray at the base of the fire.

XII. Building Evacuation

  A. Close all windows and doors as you leave the building.

    1. Have someone in your class assigned to this.

    2. Move hurriedly.

B. Make sure all people are out of the building as you leave.

C. Leave the building quickly but in an orderly manner.

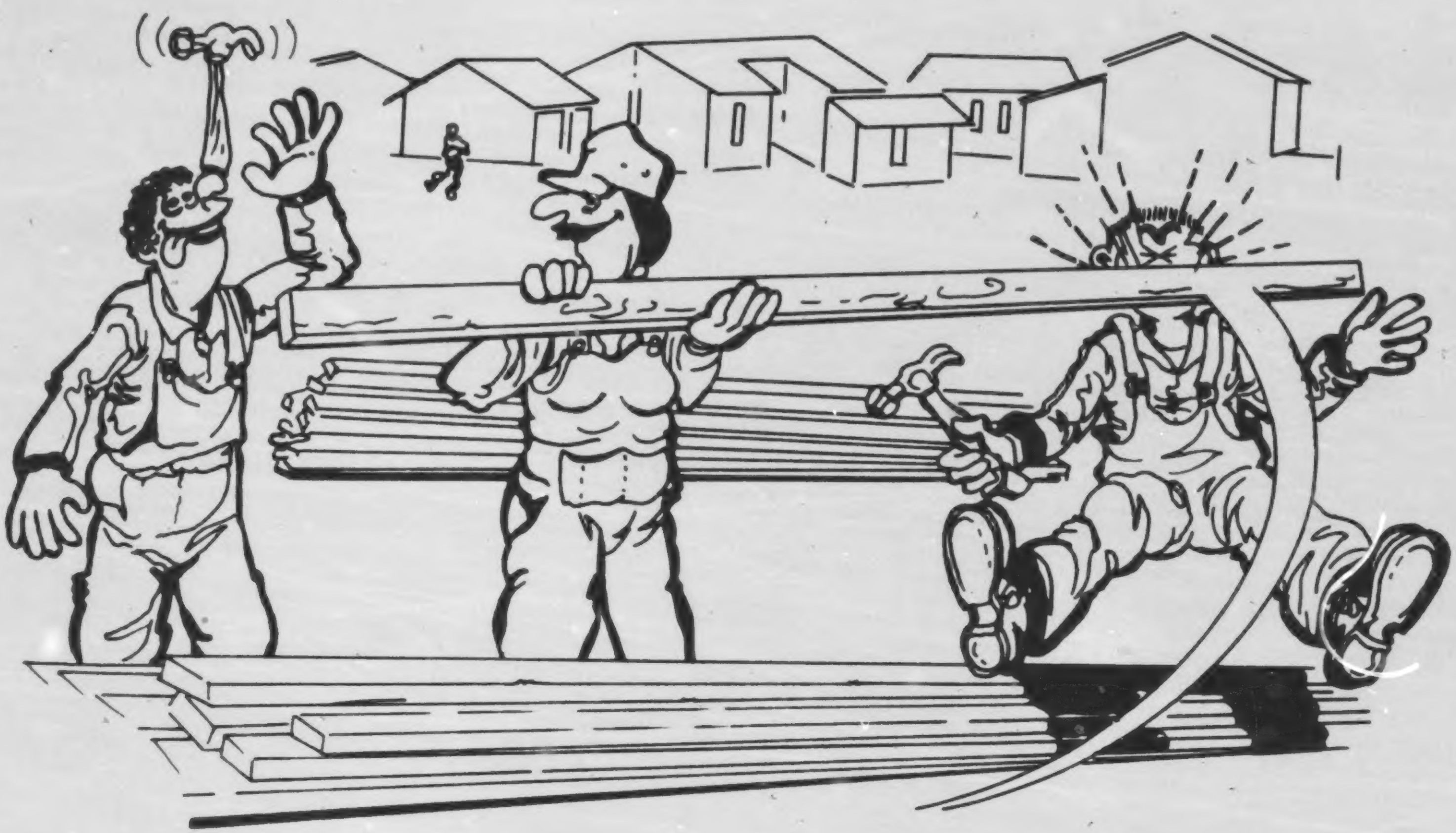
(Note: Do not run or shove.)

D. Know the best route to take when leaving the building, but also know alternate routes.

E. Move away from the building during a fire.

(Note: Explosions often occur during a fire.)

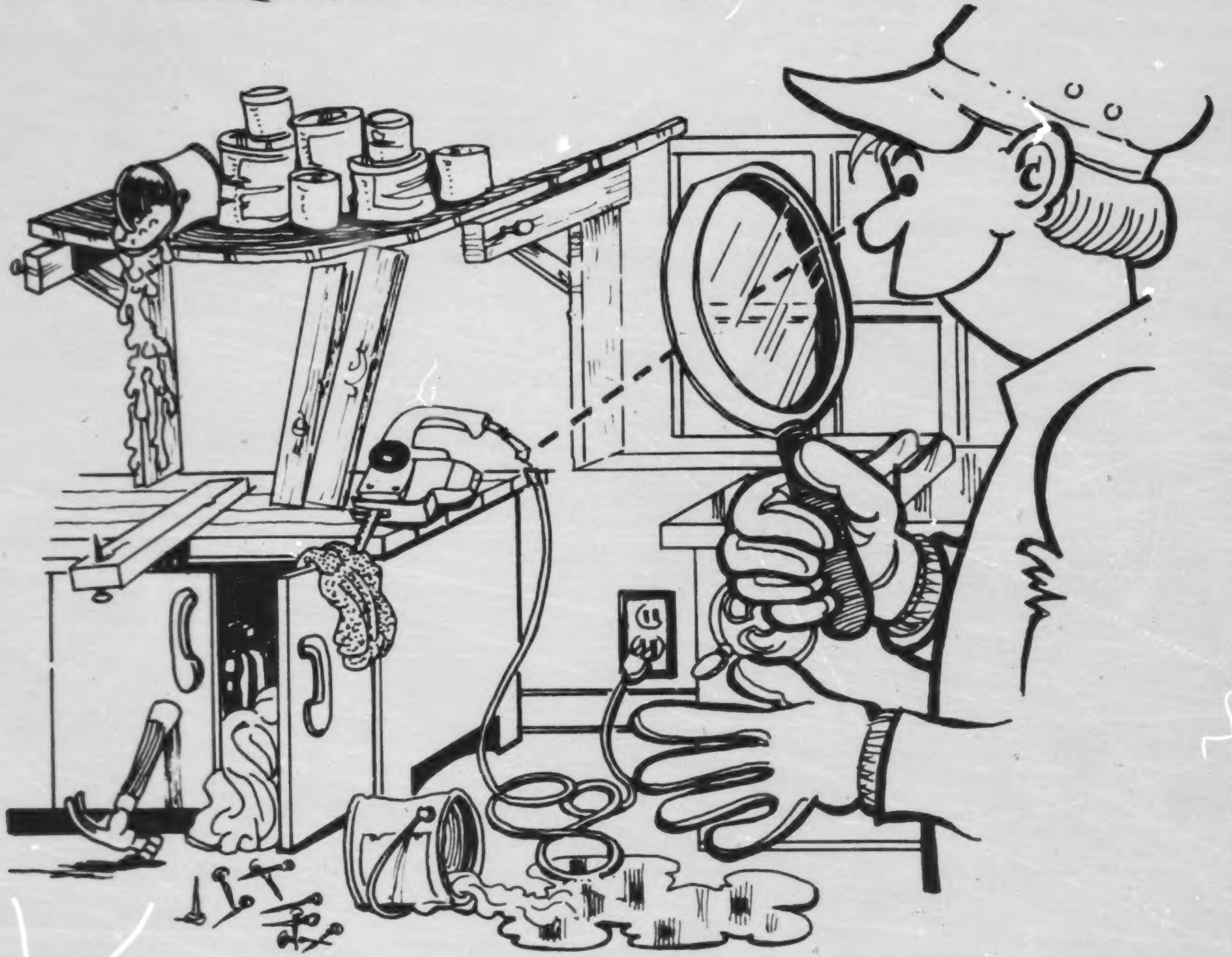
AVOID HORSEPLAY



TM-1

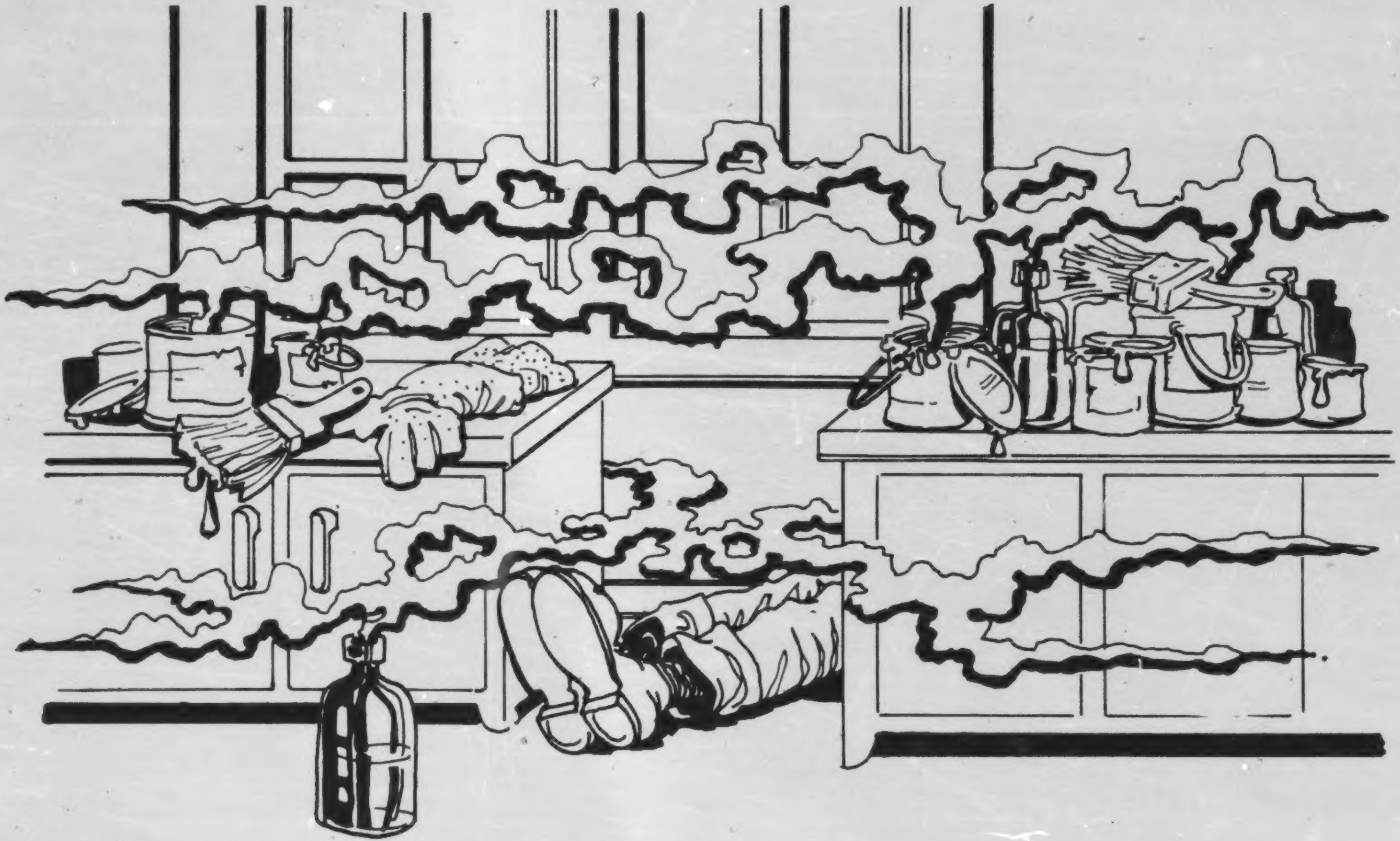
II-21

LEARN TO RECOGNIZE UNSAFE CONDITIONS



TM-2

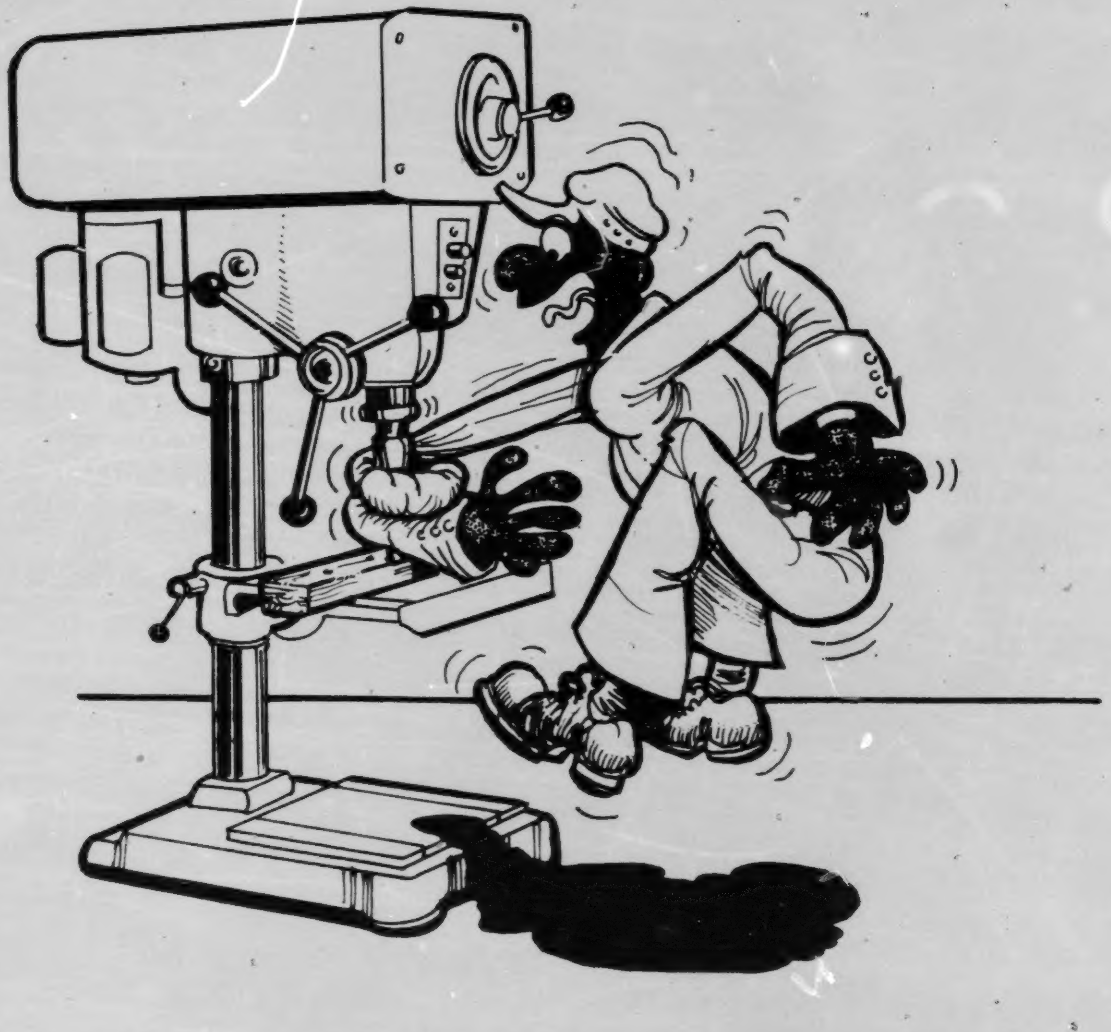
BE SURE YOU HAVE PROPER VENTILATION



TM-3

II-25

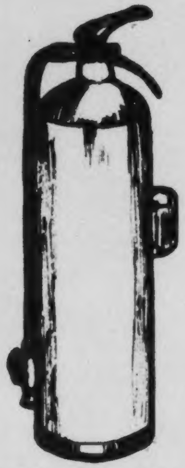
REMEMBER TO REMOVE DANGEROUS JEWELRY AND CLOTHING

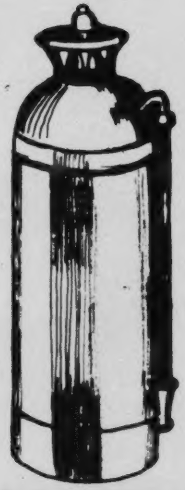


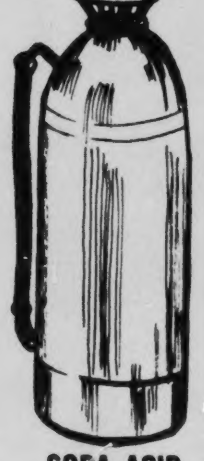
TM-4

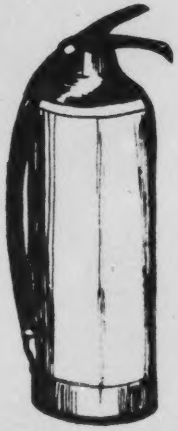
II-27

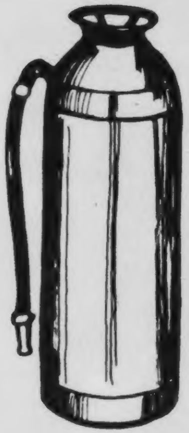
TYPES OF FIRE EXTINGUISHERS

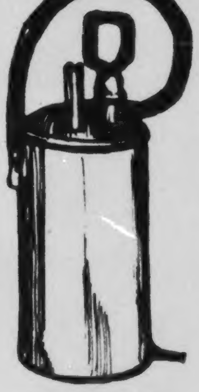

DRY CHEMICAL

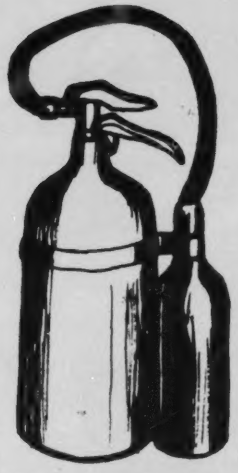

GAS CARTRIDGE


SODA ACID


PRESSURIZED WATER


FOAM

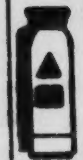
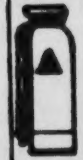
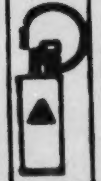
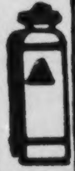
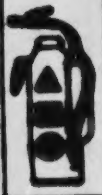
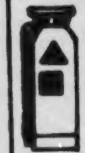
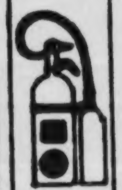
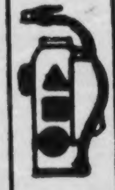
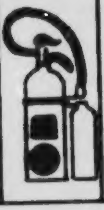
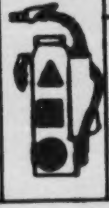

PUMP TANK

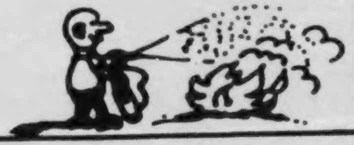
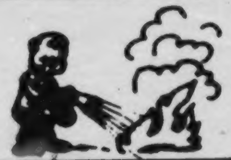
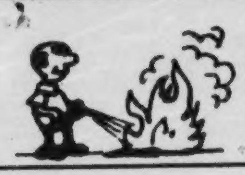
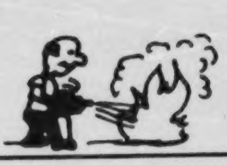
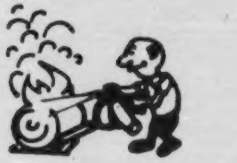

CARBON DIOXIDE

TM-5

II-29

KNOW YOUR FIRE EXTINGUISHER

DECIDE THE CLASS OF FIRE YOU ARE FIGHTING		TYPE OF EXTINGUISHER					
		FOAM	CARBON DIOXIDE	WATER	PUMP TANK	GAS CARTRIDGE	DRY CHEMICAL
A	WOOD PAPER CLOTH ETC.						
B	GASOLINE PAINTS OILS						
C	MOTORS SWITCHES						

HOW TO OPERATE	
	FOAM: Don't spray the stream into the Burning Liquid. Allow Foam to Fall Lightly on Fire.
	CARBON DIOXIDE: Direct Discharge as Close to Fire as Possible. First at Edge of Flames and Gradually Forward and Up
	SODA-ACID, GAS CARTRIDGE: Direct Stream at Base of Flames
	PUMP TANK: Place Foot on Footrest and direct Stream at Base of Flames
	DRY CHEMICAL: Direct at Base of Flames. In the Case of Class A Fires, Follow up Up by Directing the Dry Chemicals at Remaining Flames

UNIT II

SAFETY

ASSIGNMENT SHEET #1--EXPLAINING SAFETY RULES

Directions: Select one of the problems listed below and complete it in class.

1. Select one of the safety rules listed on the information sheets and draw a poster to illustrate it. You may use character drawings, cutouts, or other materials to present the situation.

2. Select five (5) of the safety rules listed in the information sheets. You should choose each rule from a different area of safety. Write a paragraph on the importance of observing each rule. Each paragraph should have a minimum of five (5) sentences. Base your paragraph on any discussions held in class or on your own ideas.

UNIT II

SAFETY

ASSIGNMENT SHEET #2--STUDENT SAFETY PLEDGE FORM

Directions: Before the participant will be allowed to use any type of hand tools or power equipment in the carpentry shop, this "Safety Pledge" must be signed by the participant and parents. The participant is responsible for returning this pledge to the teacher, who will keep it on file in the department.

______________________________, who is enrolled in Vocational _________________________, will, as a part of the shop experience, operate machines, providing that a parent or guardian gives written permission.

It is understood that each student will be given proper instruction, both in the use of the equipment and in correct safety procedures concerning it, before being allowed to operate the tools and machinery. The student must assume responsibility for the following safe practices and is therefore asked to subscribe to the following safety pledge:

1. I promise to follow all safety rules for the shop.
2. I promise never to use a machine without first having permission from the instructor.
3. I will not ask permission to use a particular machine unless I have been instructed in its use and have made 100% on the safety test for that machine.
4. I will report any accident or injury to the teacher immediately.

Date_________________Student's Signature__________________

I hereby give my consent to allow my child to operate all machines and equipment necessary in the requirements of the course in which he is enrolled.

Date_________________Parent's Signature____________________

Parents are cordially invited to visit the shop to inspect the machines and to see them in operation.

UNIT II

SAFETY

ASSIGNMENT SHEET #3--SELECTING SAFETY ATTITUDES

Directions: Print TRUE or FALSE in the space provided to the left of each statement.

_____1. The main way to stop accidents on the job is by a person's knowing safety.

_____2. The main thing in SAFETY FIRST programs is to educate the worker to safety.

_____3. The reason someone is hurt on the job is due to carelessness of him or herself or someone else.

_____4. Learning safety on the job should be less important than learning a skill.

_____5. Getting first aid at once if an injury is minor is not important.

_____6. Goals for safety should include a clean work area, use safeguards, and follow safety rules.

_____7. When lifting heavy objects, you should lift with your back.

_____8. Breaking some small safety rules is all right as long as the main rules are not broken.

_____9. Hand tools are safe, and it isn't important to observe safety rules with them.

____10. Accidents don't just happen--they are always caused by people.

____11. Tool skills can be learned, but awareness of safety depends on a person's attitude.

____12. If you are in doubt about the safe way to do a job or use a tool, you should ask questions.

____13. Having fun on a job by throwing hand tools to someone you are working with is all right.

____14. Having a place for all tools and equipment is important.

____15. If an object is too heavy for you to lift, keep trying and you can lift it.

UNIT II

SAFETY

ASSIGNMENT SHEET #4--SELECTING SAFETY FACTORS

Directions: Place the letter that correctly completes each question below.

_____1. Never place things on the places listed. (Mark the location where items may be safely placed.)

- a. window sills
- b. stepladders
- c. high places
- d. low places

_____2. Which item is less dangerous on a floor?

- a. water
- b. saw dust
- c. grease
- d. oil

_____3. When someone breaks a safety rule on the job, you should notify

- a. your work partner
- b. your boss
- c. county officials
- d. city officials

_____4. When stacking lumber on a truck, it should be

- a. cross-stacked at intervals
- b. parallel-stacked at intervals
- c. stacked any way to get it on the truck
- d. you should not stack it on the truck

_____5. You should never put what on a ladder?

a. cloths

b. old rags

c. protective glasses

d. paint

_____6. When on a high scaffold, you should wear

a. a heavy coat

b. safety glasses

c. a safety belt

d. overalls

_____7. Faulty tools should be

a. replaced

b. used

c. placed back on the shelf

d. thrown away

_____8. Guardrails should always be used

a. in low places

b. in high places

c. in flat places

d. in rough places

_____9. Clothing worn on the job should be

a. loose

b. tailored

c. without buttons

d. with buttons

____10. When working with machinery, you should

a. roll up your pants

b. roll up your shirt sleeves

c. wear no clothes

d. wear heavy clothes

____11. When working on a construction job, you should wear the following types of shoes:

a. thick-soled metal-toed shoes

b. rubber-soled shoes

c. leather-soled shoes

d. lightweight metal-toed shoes

____12. When working with rough or sharp materials, you should always wear

a. heavy clothes

b. heavy shoes

c. heavy gloves

d. heavy tools

____13. When working on a carpentry job, the worker should always wear

a. a hard hat

b. bright clothes

c. lightweight clothes

d. a soft hat

____14. When working with power machinery, a worker should always wear

a. safety clothes

b. safety hats

c. safety gloves

d. safety glasses

____15. Hand tools are safe if they are

a. heavy duty

b. lightweight

c. make-shift

d. right for the job

UNIT II

SAFETY

ASSIGNMENT SHEET #5--MATCHING SAFETY TERMS AND SITUATIONS

Directions: Match the statement on the left with the most nearly correct word or words in the right column. Place the correct letter in the space provided to the left.

_____1. Working in dusty areas

_____2. Working with sharp tools

_____3. Always work on dry ground

_____4. Working with hand tools

_____5. Striking metal surfaces

_____6. Working with power tools

_____7. Change in sound during operation

_____8. Always use guardrails

_____9. Lifting heavy objects

____10. Always use a handle

____11. Focus your full attention on

____12. Keep hair trimmed when near

____13. Safety goggles

____14. Training for safety

____15. Using a ladder

____16. Correct erecting methods

____17. Violations of safety rules

____18. Loading lumber trucks

____19. Combination of knowledge and awareness

a. Hard-faced hammer

b. Power tools

c. Legs

d. Grounded

e. Work

f. For scaffolds

g. Animals

h. Cut away from you

i. Rotating machinery

j. Flying objects

k. Cross-stack

l. Building code

m. Do not paint

n. Respirator mask

o. Notify superior

p. Sharp and clean

q. Containers

r. On solid ground

s. Soil

t. Electricity

u. File

____20. Ladder

v. Rain

w. Safety

x. Safety awareness

y. Electrical code

z. To reach high places

UNIT II

SAFETY

ASSIGNMENT SHEET #6--SAFETY RULE APPLICATION

After completing the previous assignment sheets and taking part in the class discussions, answer the following study questions to prepare you for the safety test. Be brief, yet thorough, in your answer.

1. What is necessary to do a safe, competent job?

2. How does someone lift a heavy object?

3. What kind of clothing should be worn on a carpentry job?

4. Name three types of protective equipment a carpenter may use.

5. What are three things for which you should check before using power tools?

UNIT II

SAFETY

ASSIGNMENT SHEET #7--BUILDING EVACUATION

Directions: Draw a sketch of your classroom and building. Include such details as hallways, doorways, fire escapes, windows, stairways, and other important features. Use a dark pen to draw the building, and a red pen to draw dotted lines and arrows showing the best paths to take when leaving the building during a fire. Write any notes on the drawing that you feel might tell a person what to do or expect during a fire.

UNIT II

SAFETY

ASSIGNMENT SHEET #8--WHAT TO DO IN CASE OF FIRE

Directions: List specific things a person in your class should do in case of a fire. Give options that a person might do when some things fail. (Example: An escape route is blocked with fire, what is the option?) See the information sheet on fire safety for other examples. Draw any illustrations that will make a comment clearer.

UNIT II

SAFETY

ASSIGNMENT SHEET #9--PREVENTING FIRES

Directions: List the things you can do to prevent fires in each of the following instances. Be specific.

1. In your General Construction Trades class

2. In your community

3. In your home

UNIT II

SAFETY

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The assignment should be completed to the satisfaction of the instructor.

Assignment Sheet #2

The "Student Safety Pledge Form" must be taken home by the student, signed, and dated by both the student and parent, and returned to the teacher by the student before the student will be allowed to work in the shop.

Assignment Sheet #3

1. T
2. T
3. T
4. F
5. F
6. T
7. F
8. F
9. F
10. T
11. T
12. T
13. F
14. T
15. F

Assignment Sheet #4

1. D
2. B
3. B
4. A
5. D
6. C
7. A
8. B
9. B
10. B
11. A
12. C
13. A
14. D
15. D

Assignment Sheet #5

1. N
2. H
3. T or B
4. P
5. A
6. D
7. B or I
8. Z
9. C
10. V
11. E
12. B or I
13. J
14. X
15. R
16. F
17. O
18. K
19. W
20. M

Assignment Sheet #6

Answers should contain the "General" information to be acceptable.

1. To know, understand, and practice the safety rules on the job to be done.
2. When lifting a heavy object, lift the object with your legs and not with your back.
3. Wear well-fitting clothes when working on a carpentry job.
4. Any three of the following:
    a. Gloves
    b. Thick-soled work shoes
    c. Hard hat or cap
    d. Safety goggles
    e. Dust mask

5. a. Worn or defective insulation
   b. Loose or broken connections
   c. Ground wire connections

Assignment Sheets #7, 8, and 9

These assignments should be completed to the satisfaction of the instructor.

UNIT II

SAFETY

UNIT TEST--PART 1

1. Explain safety as it applies to you in the following areas:

   a. Define safety (Circle the correct answer.)

      (1) Freedom from machine trouble

      (2) Freedom from accidents

      (3) Looking around you

   b. The Occupational Safety and Health Act does which of the following: (Circle the correct answer.)

      (1) Provides medical help for the injured

      (2) Assures every working person safe and healthful working conditions and preservation of human resources

      (3) Organizes accident-prevention programs in school shops

   c. General safety does not include which of the following? (Circle the [illegible]rect answer.)

      (1) Attitude

      (2) Personal safety

      (3) Group safety

      (4) Safety deposit box

      (5) Shop safety

      (6) Clothing and equipment safety

      (7) Hand- and power-tool safety

2. Point out the importance of good safety attitudes by placing a "√" in front of each correct statement.

____a. The proper attitude is a must in a General Construction Trades shop.

____b. Most accidents are caused by other people.

____c. Each student should be on guard against accidents at all times.

____d. Visiting should be done during shop time because it keeps others alert.

3. Point out the ways you can practice personal safety by placing a "√" in front of each correct statement below.

____a. Personal safety involves protecting yourself from injury caused by your own or others' actions.

____b. Personal safety involves being aware of unsafe conditions and practices.

____c. Personal safety involves looking after yourself only.

____d. Personal safety involves protecting others by practicing your own personal safety.

4. Discuss three ways you can participate in group safety.

a.

b.

c.

UNIT II

SAFETY

UNIT TEST--PART 2

5. Select the correct safety rules to be followed in the shop by answering true or false to each of the following.

____a. Wrestling, throwing objects, and general horse-play are fine shop activities.

____b. Everything should have a place provided for it and be kept in its place.

____c. The arms and body should be in an arched position when lifting heavy objects.

____d. Never place objects on high places where they may fall and cause injuries.

____e. Do not leave slippery substances on floors because these may cause people to fall.

____f. Keep all work spaces clean of all materials to avoid stumbling or falling.

____g. Turn boards with nails so that the points are up so they can easily be seen.

____h. Notify your best friend of any violations of safety rules or of conditions you think may be dangerous.

____i. Always cross-stack the load at intervals when loading trucks.

____j. Inspect ladders before using and remove any faulty ladders from use.

____k. When using a ladder, rest one leg on soft dirt.

____l. Be familiar with the correct methods for erecting a scaffold.

____m. Use faulty tools until they quit completely.

____n. Immediately report all accidents and report for first-aid treatment.

____o. Do not take chances!

UNIT II

SAFETY

UNIT TEST--PART 3

6. Select the proper clothing and personal protective equipment by placing the number of the correct answer in the space provided for each statement.

   a. The type of clothing that should be worn in the shop is ___________.

      (1) No clothing

      (2) Well-fitting carpenter's overalls

      (3) Loose clothing with neckties

   b. Shirt sleeves should be worn________________.

      (1) Rolled up

      (2) Rolled down

      (3) Unbuttoned and flopping

   c. For protection against sharp objects, you would wear ________________.

      (1) Tennis shoes and plastic gloves

      (2) No shoes or gloves

      (3) Thick-soled work shoes and gloves

   d. For protection of you head, you should ___________.

      (1) Stay out of the way of work

      (2) Wear a hard hat and keep your hair trimmed

      (3) Wear a head scarf

   e. When around abrasive, scraping, or sawing equipment, you should wear _____________.

      (1) Ear plugs

      (2) A belt

      (3) Safety goggles

f. When working in industry conditions, you should wear ____________.

(1) A dust mask

(2) Thick-soled boots

(3) Short-sleeved shirts

UNIT II

SAFETY

UNIT TEST--PART 4

7. Select the correct safety rules to follow when using hand tools by placing a "√" in front of each correct statement.

____a. Focus your full attention on the work.

____b. Use the right tool for the right job.

____c. Learn how to use the tool properly.

____d. Keep tools in their best condition.

____e. Keep each tool in its place.

____f. When using sharp-edged tools, cut toward the body.

____g. Keep sharp-edged tools away from the edge of a bench or work area.

____h. Carry sharp-pointed tools with the cutting edge or point down.

____i. Keep tools sharp and clean.

____j. Never use a handle on a file.

____k. Do not strike hardened metal or tools with a hard-faced hammer.

____l. Avoid mushrooming or batter-heads of metal tools by keeping them ground smooth and square.

UNIT II

SAFETY

UNIT TEST--PART 5

8. Select the correct safety rules to follow when using power tools by answering TRUE or FALSE to each of the following.

____a. Be sure all power tools are not grounded.

____b. Power tools should be inspected and serviced at regular intervals by qualified repairmen.

____c. Know and understand all of the manufacturer's safety recommendations.

____d. Be familiar with the operation procedures of the tool.

____e. Inspect electrical cords to see that they are in good condition.

____f. Leave electrical cords to see that they are in good condition.

____g. Take safety guards off when they get in the way.

____h. Remove a tie, rings, or a wristwatch, and roll up long sleeves before using power tools.

____i. Be sure that your hands are dry.

____j. Make all adjustments and inspections with the power OFF and the cable DISCONNECTED.

____k. Before connecting to a power source, be sure that the switch is in the ON position.

____l. Wear safety goggles and a dust mask when you feel like it.

____m. Be sure that the materials to be worked are free of obstructions and securely clamped.

____n. Keep your attention focused on the work.

____o. Change in sound during power-tool operation normally indicates everything is working fine.

____p. When work is completed, shut off all power tools.

____q. When work is completed, the power tools should be left plugged in.

____r. When a tool is disconnected, remove blades, bits, or any other cutter from the tool.

____s. Store power tools and blades, bits, or other cutters in their proper places.

____t. When a power tool is defective, remove it from service.

UNIT II

SAFETY

UNIT TEST--PART 6

9. Select the correct rules associated with fire safety by answering safe or unsafe to each of the following.

____a. You should practice fire prevention.

____b. The materials burning in a fire is not important.

____c. Give a fire the chance to go out on its own before reporting it.

____d. Know how to use a fire extinguisher.

____e. When you see a fire, grab the closest extinquisher.

____f. Know the location of a fire alarm.

____g. Only doctors need to know how to treat burns.

____h. Keep the shop clean and flammables stored.

____i. Know how to leave a building during a fire.

____j. Fire drills are for fun.

10. Point out the class of fire according to the material burning by placing the correct number in the blanks.

____a. Flammable liquids, such as gasoline, paint, or oil

____b. Ordinary combustibles, such as wood, paper, or cloth

____c. Electrical equipment, such as motors or switches

1. Class A
2. Class B
3. Class C

11. Point out the types of fire extinguishers and methods of use by writing the correct letter from each of the areas below in the blank provided.

Classes of fires	To operate	Spray
A	Squeeze handle	At base of fire
B	Turn upside down	Over the fire
C		

	Classes	To operate	Spray
a. Foam	______	__________	_____
b. Carbon dioxide	______	__________	_____
c. Soda acid	______	__________	_____
d. Water	______	__________	_____
e. Dry chemical	______	__________	_____

12. Select the correct procedures for evacuating the building in case of a fire by answering true or false to each of the following:

____a. The doors and windows should be left open so that firemen may get to the fire easily.

____b. Make sure all people are out of the building as you leave.

____c. Leave the building through any window or door close by.

____d. Know the best route to take when leaving the building.

____e. Stand around the building during a fire to see if you can help.

13. Complete a safety project.

14. Fill out a safety pledge form.

15. Select the proper safety attitudes for construction workers.

16. Select the proper safety factors for construction work.

17. Match the correct safety terms to construction situations.

18. Apply safety rules to shop situations.

19. Draw a building evacuation plan.

20. Explain what to do in case of a fire.

21. List the things you can do to prevent fires in your class, community and home.

(Note: If activities 13 through 21 have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT II

SAFETY

ANSWERS TO TEST--PART 1

1. a. (2) Freedom from accidents

   b. (2) Assures every working person safe and healthful working conditions and preservation of human resources

      (3) Organizes accident-prevention programs in school shops

   c. (5) Safety deposit box

2. a. ✓

   b.

   c. ✓

   d.

3. a. ✓

   b. ✓

   c.

   d. ✓

4. a. Include the entire class

   b. Realize that every student's actions can be a reaction on you.

   c. Stress classroom safety to your classmates.

PART 2

5. a. False

   b. True

   c. False

   d. True

   e. True

f. True

g. False

h. False

i. True

j. True

k. False

l. True

m. False

n. True

o. True

PART 3

6. a. (2)

b. (1)

c. (3)

d. (2)

e. (3)

f. (1)

PART 4

7. a. ✓

b. ✓

c. ✓

d. ✓

e. ✓

f.

g. ✓

h. ✓

i. ✓

j.

k. ✓

l. ✓

PART 5

8. a. False

b. True

c. True

d. True

e. True

f. False

g. False

h. True

i. True

j. True

k. False

l. False

m. True

n. True

o. False

p. True

q. False

r. True

s. True

t. True

PART 6

9. a. safe

b. unsafe

c. unsafe

d. safe

e. unsafe

f. safe

g. unsafe

h. safe

i. safe

j. unsafe

10. a. 2

b. 1

c. 3

11. a. A, B - Turn upside down - Over the fire

b. B, C - Squeeze handle - At base of fire

c. A - Turn upside down - At base of fire

d. A - Squeeze handle - At base of fire

12. a. False

b. True

c. False

d. True

e. False

13 - 21. Evaluated to the satisfaction of the instructor.

UNIT III

HUMAN RELATIONS IN THE SHOP

UNIT OBJECTIVE

After completing this unit, the student will be able to determine the characteristics of a pleasing personality, characteristics of a good fellow worker, reasons why people work, and basic ways of getting along with people. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student will be able to:

1. Match the terms associated with human relations to the correct definition.
2. Point out the reasons we study personality.
3. Arrange in logical order steps in improving your personality.
4. Select the characteristics of a pleasing personality.
5. Select the characteristics of a good fellow worker.
6. Select the personality traits that should be avoided.
7. Select the reasons why people work.
8. Point out the reasons why most people lose their jobs.
9. List three ways people are different.
10. Select the basic ways of getting along with people.
11. Point out the factors to consider concerning human relations with co-workers.
12. Point out personality traits of individuals.

UNIT III

HUMAN RELATIONS IN THE SHOP

SUGGESTED ACTIVITIES

I. Instructor

   A. Provide student with objective sheet.

   B. Provide student with information and assignment sheets.

   C. Make transparency.

   D. Discuss unit and specific objectives.

   E. Show and discuss transparency.

   F. Discuss information and assignment sheets.

   G. Have students discuss their own personalities to compare this with how others rate them using the assignment sheet.

   H. Have a person from a construction company talk about human relations to the class.

   I. Take a field trip to a construction site to view how people work together.

   J. Have discussions on working together, attitudes, and job success.

   K. Have students complete assignment sheets.

II. Student:

   A. Read objective sheet.

   B. Study information sheet and ask questions.

   C. Complete assignment sheets.

   D. Participate in class discussions.

   E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objective sheet
- B. Information sheet
- C. Transparency master

  III-TM-1--Constructing Job Success

- D. Assignment sheets
  - 1. Assignment Sheet #1--Human Relations With Fellow Workers
  - 2. Assignment Sheet #2--Personality Rating Sheet
- E. Answers to assignment sheets
- F. Test
- G. Answers to test

II. References:

- A. Carlile, Robert. Agricultural Sales and Services. Columbia, Missouri: Instructional Materials Laboratory, University of Missouri, 1976.
- B. Laird, Donald A. and others. Psychology, Human Relations and Motivation. 5th ed. New York: Gregg and Community College Division, McGraw-Hill Book Company, 1975.
- C. Occupational Curriculum Laboratory. Instructor's Guide: An Introduction to Shop and Laboratory Teaching. 7th ed., Commerce, Texas: East Texas State University, 1977.

UNIT III

HUMAN RELATIONS IN THE SHOP

INFORMATION SHEET

I. Terms and definitions

   A. Human relations--Getting along with people and learning to accept them as they are

   B. Personality--The sum of all specific traits that are noticeable in an individual's behavior.

   C. Attitude--Determines what one does and affects one's manner of behavior

   D. Respect--Giving consideration to people and their thoughts

   E. Service--Giving of oneself, talent, and abilities

II. Four reasons why we study personality

   A. To understand ourselves

   B. To understand others

   C. To better live in our society

   D. To improve our personalities

III. Steps in improving your personality

   A. Decide that your personality can be improved.

   B. Find out how your personality rates.

      (Note: This can be done with the personality rating sheet in this unit.)

   C. Study this rating trait by trait.

   D. Develop a plan of action.

   E. Carry out your plan of action.

IV. Characteristics of a pleasing personality.

   A. Cheerfulness

   B. Friendliness

C. Forcefulness

D. Self-confidence

E. Tactfulness

V. Characteristics of a good fellow worker

A. Following business rules and policies

B. Respecting authority

C. Carrying out assigned responsibilities

D. Being able to go more than half way

E. Showing one's interest by being bright-eyed and alert

F. Showing one's admiration and appreciation

G. Making good use of constructive criticism

H. Contributing new ideas

I. Being honest

VI. Personality traits that should be avoided

A. "Politicking"

B. "Passing the buck"

C. "Apple-polishing"

D. "Clique-forming"

E. "Gossiping"

VII. Reasons why people work

A. Satisfaction

B. Support family

C. Acceptance of peers

D. Power

E. Wealth

F. Achieve goals

VIII. Reasons employees lose their jobs

  A. Inability to get along with fellow workers

  B. Poor attendance and too often late to work

  C. Abusing break times

IX. Ways people are different

  A. Backgrounds

  B. Attitudes

  C. Abilities

X. Basic ways of getting along with people

  A. Keep skid chains on your tongue; always say less than you think.

  (Note: Cultivate a low, persuasive voice. How you say it often counts far more than what you say.)

  B. Make promises sparingly and keep them faithfully at any cost.

  C. Never miss a chance to say something kind and encouraging to or about somebody.

  (Note: Praise people for good work done, and if criticism is necessary, criticize constructively.)

  D. Be interested in others.

  (Note: Be interested in their pursuits, their welfare, their homes, and families. Make merry with those who rejoice, and mourn with those who weep. Let those you meet feel that you regard them as persons of importance.)

  E. Be cheerful.

  (Note: Even if you have pain, worries, and disappointments, having a smile on your face will tend to make them seem less important.)

  F. Keep an open mind during all discussions.

  (Note: Discuss but don't argue. It is a mark of superior minds to disagree and yet be friendly.)

G. Let your strengths speak for themselves, and refuse to talk of another's faults.

H. Be careful of other's feelings.

(Note: Wit and humor at the other fellow's expense are rarely worth the effort, and may hurt where they are least expected.)

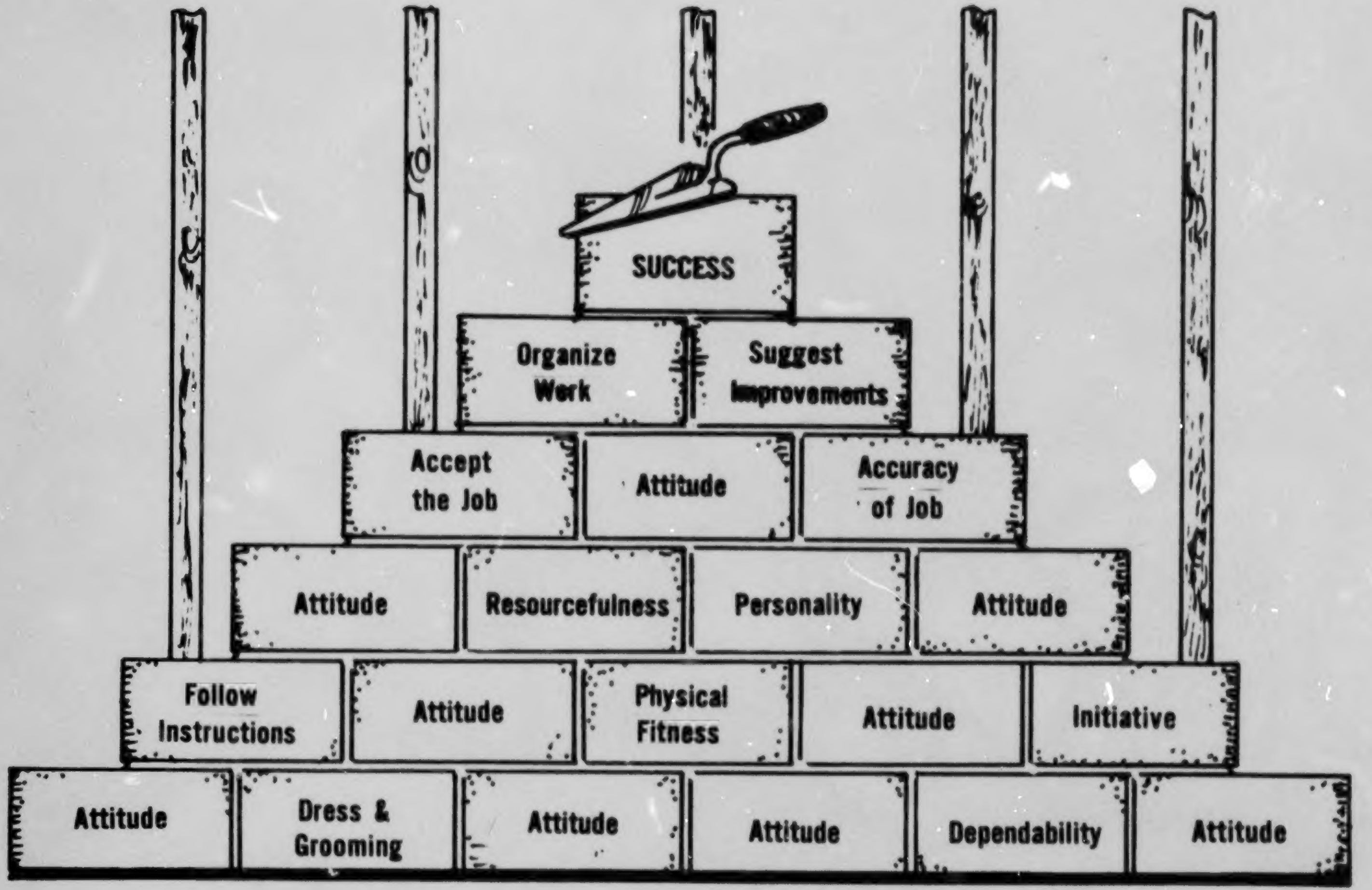
I. Pay no attention to ill-natured remarks about you.

(Note: Simply live so nobody will believe them.)

J. Do not be too anxious about getting praise.

(Note: Do your work, be patient, keep yourself honest, forget self, and you will be respected and rewarded.)

CONSTRUCTING JOB SUCCESS



SUCCESS

Organize Work
Suggest Improvements

Accept the Job
Attitude
Accuracy of Job

Attitude
Resourcefulness
Personality
Attitude

Follow Instructions
Attitude
Physical Fitness
Attitude
Initiative

Attitude
Dress & Grooming
Attitude
Attitude
Dependability
Attitude

HUMAN RELATIONS IN THE SHOP

ASSIGNMENT SHEET #1--HUMAN RELATIONS WITH FELLOW WORKERS

Directions: Choose the answer which is correct for each of the following questions. Place your selection in the blank at the left. Orally discuss those you have any questions about.

____1. Many occupations deal primarily with machines, equipment, or paper work; that is, they deal with things. In industry, however, most of the jobs involved close contact with:

a. employers

b. supervisors

c. people

d. other workers

____2. For the most part, people are very much:

a. different

b. alike

c. it is difficult to say

____3. It is possible that the things which you enjoy may:

a. appeal to others

b. not appeal to others

c. be distasteful to others

d. all of the above

____4. Which of the following do most people have in common?

a. right to work at a job of their choice

b. desire to get ahead

c. desire to be accepted and approved

d. all of these

e. none of these

____5. The best way to achieve your goals in life is to follow your rights and desires and:

a. also the wish of your boss

b. what your parents say

c. do unto others as you would have them do unto you

d. do just what you feel like doing

____6. Do the best work you can for the important jobs and:

a. don't worry about the little jobs

b. let others do the little jobs

c. also do the most routine jobs

d. everything else will take care of itself

____7. Plus doing the best work you can, it is important to:

a. learn as much as you can about your company

b. see what you can get on your boss

c. keep up on the latest gossip

d. be seen and not heard

____8. The right to think and act as individuals ________ normally shared by most.

a. is not

b. may be

c. is

____9. The statement that "retailing is people" is:

a. not true

b. only part true

c. all true

____10. Which of the following is not a desirable trait of an employee?

a. sense of humor

b. tack

c. indifference

d. initiative

____11. Using others for our own benefit is:

a. desirable

b. OK if you can get away with it

c. undesirable

d. not too bad

____12. When you are criticized by your superior, it is best to:

a. act indifferent

b. tell him to do it himself

c. take it constructively

d. shrug it off

____13. Loyalty includes:

a. working hours only

b. both the time to and from work

c. all the time

d. just when you feel like it

____14. To approach your job with enthusiasm, it is necessary to:

a. fool the boss

b. impress your co-workers

c. be glad to be part of the team

____15. It is not necessary to be friendly as long as you:

a. do your job

b. act as though you are

c. get to work on time

d. none of these

____16. When you have a question, it is best to:

a. do the job the way you think it should be done

b. wait and ask it later

c. not bother your boss with it

d. ask it when it comes up

____17. When you have joined a clique, you have:

a. picked sides

b. helped yourself

c. joined the "in" group

d. become a member of the team

____18. A good way to get along in your new job is to:

a. be a "know-it-all"

b. be willing to learn

c. show your co-workers how smart you are

d. run to your boss with every question you have

____19. Showing that you are not afraid of work means to:

a. work as hard as you can

b. be willing to tackle any job assigned

c. work harder than any of your co-workers

____20. The need to show appreciation to fellow workers:

a. will get you nowhere

b. is strongest when you are new

c. isn't really necessary at all

d. is just on the surface

____21. You should start calling your co-workers by their:

a. first names as soon as possible

b. nicknames to show you are really in

c. last names only

d. proper names until you have been around awhile or told differently

____22. If you do all of the things we have suggested, you will have:

a. everyone liking you

b. a few things

c. a better chance of being well-liked

d. the reputation for being an apple-polisher

____23. The people you can learn the most from are:

a. always your bosses

b. your best buddies

c. those who show an interest in you

d. the ones you eat lunch with

____24. Human behavior is usually:

a. pretty easy to understand

b. not too predictable

c. easy to predict

d. none of your business

UNIT III

HUMAN RELATIONS IN THE SHOP

ASSIGNMENT SHEET #2--PERSONALITY RATING SHEET

Directions: Be as sincere as possible and rate a fellow student. Remember, you are helping your friends. Do not let your writing or anything give away your identity as the rater. Hand back the completed rating to your instructor, so ratings may be passed on to the student being rated.

NAME OF STUDENT BEING RATED ____________________________

TRAITS	Very Good	Above Average	Average	Below Average	Poor
1. Posture	_____	_______	_______	_______	_____
2. Facial expressions	_____	_______	_______	_______	_____
3. Health	_____	_______	_______	_______	_____
4. Grooming	_____	_______	_______	_______	_____
5. Dress	_____	_______	_______	_______	_____
6. Mannerisms	_____	_______	_______	_______	_____
7. Speech	_____	_______	_______	_______	_____
8. Bodily movements	_____	_______	_______	_______	_____
9. Intelligence	_____	_______	_______	_______	_____
10. Initiative	_____	_______	_______	_______	_____
11. Industry	_____	_______	_______	_______	_____
12. Dependability	_____	_______	_______	_______	_____
13. Enthusiasm	_____	_______	_______	_______	_____
14. Sincere interest in others	_____	_______	_______	_______	_____
15. Honesty	_____	_______	_______	_______	_____
16. Courtesy	_____	_______	_______	_______	_____

TRAITS	Very Good	Above Average	Average	Below Average	Poor
17. Manners					
18. Respect for others					
19. Emotional control					
20. Self-confidence					
21. Moral values					
22. Loyalty					
23. Desire to work					
24. Acceptance of change					
25. Ability to decide					
26. Ability to accept criticism					
27. Tact					
28. Cheerfulness					
29. Alertness					
30. General knowledge					
31. Willingness to help					
32. Shows initiative					
33. Accepts duties					
34. Expresses other interest					
35. Maturity					

UNIT III

HUMAN RELATIONS IN THE SHOP

ANSWERS TO ASSIGNMENT SHEET

Assignment Sheet #1

Answers may vary, but a good discussion is more important than having the correct answers on the quiz.

1. d There is contact with all of these groups, but the close contact is with other workers.
2. b This is a generalization, but all people like to be treated with respect, considered important, treated fairly.
3. d All three of these apply--it could be any of these.
4. d These are important traits for achieving success in life.
5. c Do unto others as you would have them do unto you.
6. c
7. a
8. c
9. b To be successful, the employee needs to know about the products, services, etc.
10. c
11. c
12. c
13. c
14. c
15. d
16. d
17. a

18. b

19. b

20. b

21. d This is part of respect.

22. c

23. c

24. a

Assignment Sheet #2

Have students hand in rating sheets and return them to each student rated. This may be done several times, rating different students each time.

UNIT III

HUMAN RELATIONS IN THE SHOP

UNIT TEST

Match the terms associated with human relations to the correct definitions by placing the number of each term in the blanks provided.

1. ____a. Getting along with people and learning to accept them as they are

   ____b. All of a person's traits that are noticeable in an individual's behavior

   ____c. Determines what one does and affects one's manner of behavior

   ____d. Giving consideration to people and their thoughts

   ____e. Giving of oneself, talent, and abilities

   1. Personality
   2. Service
   3. Human relations
   4. Respect
   5. Attitude

2. Point out the reasons we study personality by answering yes or no to each of the following statements.

   ____a. to understand ourselves

   ____b. to kill time

   ____c. to point out a person's bad traits

   ____d. to understand others

   ____e. to better live in our society

   ____f. to improve our personalities

3. Arrange in logical order steps in improving your personality.

   ____a. Study this rating trait by trait

   ____b. Decide that your personality can be improved

   ____c. Carry out your plan of action

____d. Find out how your personality rates

____e. Develop a plan of action

4. Select the characteristics of a good personality by placing a "✓" in the blank next to good characteristics.

____a. Cheerfulness

____b. Spitefulness

____c. Self-confidence

____d. Tactfulness

____e. Conceited

____f. Forcefulness

5. Select the characteristics of a good fellow worker by placing a "✓" in the correct blanks.

____a. Carrying out assigned responsibilities

____b. Criticizing company policy

____c. Doing only the work assigned to you

____d. Contributing new ideas

____e. Following business rules and policies

____f. Respect for authority

____g. Being critical of new ideas

6. Select the personality traits that should be avoided by placing a "✓" in the correct blanks:

____a. Passing the buck

____b. Dedication

____c. Loyalty

____d. Gossiping

____e. Apple-polishing

7. Select the reasons why people work by placing a "✓" in the correct blank.

____a. For personal satisfaction

____b. To support a family

____c. To achieve goals

____d. To get out of the house

____e. For acceptance of peers

____f. For power

____g. To decrease welfare rolls

____h. For wealth

8. Point out the reasons why most employees lose their jobs by answering true or false to each of the following statement.

____a. Working too hard

____b. Unable to get along with fellow workers

____c. Poor attendance and too often late to work

____d. Trying to advance

____e. Abusing break times

9. List three ways people are different.

a.

b.

c.

10. Select the basic ways of getting along with people by placing a "✓" in the correct blanks.

____a. Be cheeful.

____b. Complain often.

____c. Talk about co-workers behind their backs.

____d. Keep an open mind during all discussions.

____e. Be careful of others' feelings.

____f. Voice your opinions often.

____g. Tell others of your strengths and point out their faults.

____h. Be interested in others.

____i. Keep only the promises that are easily kept.

11. Point out the correct factors to consider concerning human relations with co-workers.

12. Point out personality traits of individuals.

(Note: If activities #10 and #11 have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT III

HUMAN RELATIONS IN THE SHOP

ANSWERS TO TEST

1. a. 3
   b. 1
   c. 5
   d. 4
   e. 2
2. a. yes
   b. no
   c. no
   d. yes
   e. yes
   f. yes
3. a. 3
   b. 1
   c. 5
   d. 2
   e. 4
4. a. ✓
   b.
   c. ✓
   d. ✓
   e.
   f. ✓
5. a. ✓
   b.
   c.
   d. ✓
   e. ✓
   f. ✓
   g.
6. a. ✓
   b.
   c.
   d. ✓
   e. ✓
7. a. ✓
   b. ✓
   c. ✓
   d.
   e. ✓
   f. ✓
   g.
   h. ✓
8. a. false
   b. true
   c. true
   d. false
   e. true
9. a. backgrounds
   b. attitudes
   c. abilities
10. a. ✓
   b.
   c.
   d. ✓
   e. ✓
   f.
   g.
   h. ✓
   i.

11 & 12. Evaluated to the satisfaction of the instructor.

UNIT IV

GROOMING AND HYGIENE

UNIT OBJECTIVE

After completing this unit, the student will be able to identify terms and habits on grooming and personal hygiene, describe clothing appropriate for leisure wear and work, analyze grooming habits, and plan and select proper clothing. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student will be able to:

1. Match terms associated with grooming and hygiene with their proper definitions.
2. Select good grooming habits.
3. Point out the things to consider when selecting clothing.
4. Point out the types of foods and recommended daily servings for teenagers for each of the basic food groups.
5. Point out good sleeping habits.
6. Analyze personal grooming habits.
7. Construct posters representing food groups, proper dress, and personal hygiene.
8. Plan and select the leisure and work clothing for a week.

UNIT IV

GROOMING AND HYGIENE

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide objective sheet

  B. Provide information and assignment sheets

  C. Make transparencies

  D. Discuss terminal and specific objectives

  E. Discuss information sheet

  F. Give test and evaluate results

II. Students:

  A. Read objectives

  B. Study information sheet and ask questions

  C. Complete assignment sheets

  D. Take test

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objectives

  B. Information sheet

  C. Transparencies

    1. IV-TM-1--How Do You Spend Your Grooming Time

    2. IV-TM-2--Let's Improve Our Looks

    3. IV-TM-3--Personal Hygiene

    4. IV-TM-4--Basic Food Groups

  D. Assignment sheets

    1. Assignment Sheet #1--Grooming Self-Analysis

2. Assignment Sheet #2--Hygiene, Grooming and Foods

3. Assignment Sheet #3--Clothing Selection

E. Test

F. Answers to test

II. References:

A. About Him. Dallas: Gregg Division, McGraw-Hill Book Company, 1968.

B. Curriculum and Instructional Materials Center. Cooperative Office Education. Stillwater, Okla.: Oklahoma State Board for Vocational and Technical Education, 1973.

C. Laird, Donald A. and others. Psychology: Human Relations and Motivation. 5th ed. Dallas: Gregg and Community College Division, McGraw-Hill Book Company, 1975.

D. Russon, Allien R. Personality Development for Business. 4th ed. Cincinnati: South-Western Publishing Company, 1973.

III. Training Aids

A. "We're Only Human" - 16mm Film--Available from Motion Talking Picture Service, 4084 Westheimer Road, Houston, Texas, 77027.

B. "Fashion Designs on You" - 16mm Film--Available from American Sheep Producers Council, Department C.O., 200 Clayton Street, Denver, Colorado.

C. "The Beauty of You" - 16mm Film--Available from Association-Sterling Films, 8615 Directors Row, Dallas, Texas, 75427.

D. "Nutrition Is" - 16mm Film--Avaiable from West Glen Films, 565 Fifth Avenue, New York, New York, 10017.

UNIT IV

GROOMING AND HYGIENE

INFORMATION SHEET

I. Terms and Definitions

   A. Accessories--Jewelry and additional clothing items which add attractiveness to basic clothing apparel

   B. Acne--Skin disease common with teenagers

   C. Adaptable--The ability to adjust to various situations

   D. Allergies--Bodily reactions to various food, fibers, etc.

   E. Antiperspirant--Preparation that keeps underarms dry and odor-free

   F. Astringents--Lotions containing some alcohol and usually patted on the face

   G. Comparison--Looking at different things and describing how they are similar or different

   H. Compliment--Words of praise or approval

   I. Conspicuous--Something that is obvious, noticeable, and usually not in good taste

   J. Cosmetics--Beauty-aid products

   K. Cuticle--Thin dead skin at the sides and base of a fingernail or toenail

   L. Fatigue--Being tired

   M. Immaculate--Spotlessly clean

   N. Lotion--A substance used to make the skin smooth and soft

   O. Manicure--To file and buff nails and to trim cuticles

   P. Schedule--A timetable of activities

II. Grooming Habits

    A. Good health

        1. Bathe daily

        2. Exercise regularly

        3. Get sufficient sleep

        4. Brush teeth (as often as possible)

        5. Eat regular meals

    B. Appearance

        1. Shave as often as required

        2. Clean and manicure nails

        3. Brush hair into an attractive style

        4. Use a deodorant or antiperspirant

        5. Shampoo hair as needed

        6. Wear appropriate clothing

        7. Practice good posture

III. Clothing Selection

    A. Clothing should be practical for the individual and easy to care for.

    B. Considerations during selection

        1. Fit and comfort

        2. Suitability

        3. Personality

        4. Figure problems

        5. Price of items and clothing budget

        6. Workmanship

        7. Fabric type and upkeep

        8. Color, line, and style

9. Life expectancy
10. How well the article would go with your other clothing

C. Essentials of clothing for shop work

1. Comfortable
2. Durable
3. Safe
4. Suitable and well-fitting
5. Easily cared for

D. Clothing does not have to be new to be clean, well-fitting, or suitable for work.

IV. Eating Proper Foods

A. To look trim and alert, individuals should keep their weight according to their body structure.

B. Basic food groups

1. Milk--includes cheese, ice cream, and other milk-made foods
2. Meat--includes meats, fish, and poultry
3. Vegetables and fruits--includes dark green and yellow vegetables, citrus fruit or tomatoes
4. Breads and cereals--includes grain products

C. Recommended daily servings for teenagers

1. Milk--four servings
2. Meat--two or more servings
3. Vegetables and fruits--four or more servings
4. Breads and cereals--four servings

D. Proper foods along with proper sleep and exercise produce a good complexion, shiny hair, a glowing appearance, and plenty of energy.

V. Good Sleeping Habits

  A. Get some exercise every day.

  B. Avoid foods which are hard to digest.

  C. Follow a schedule for getting to bed at the same time every night.

  D. Avoid excitement before bedtime.

  E. Avoid worrying when getting to bed.

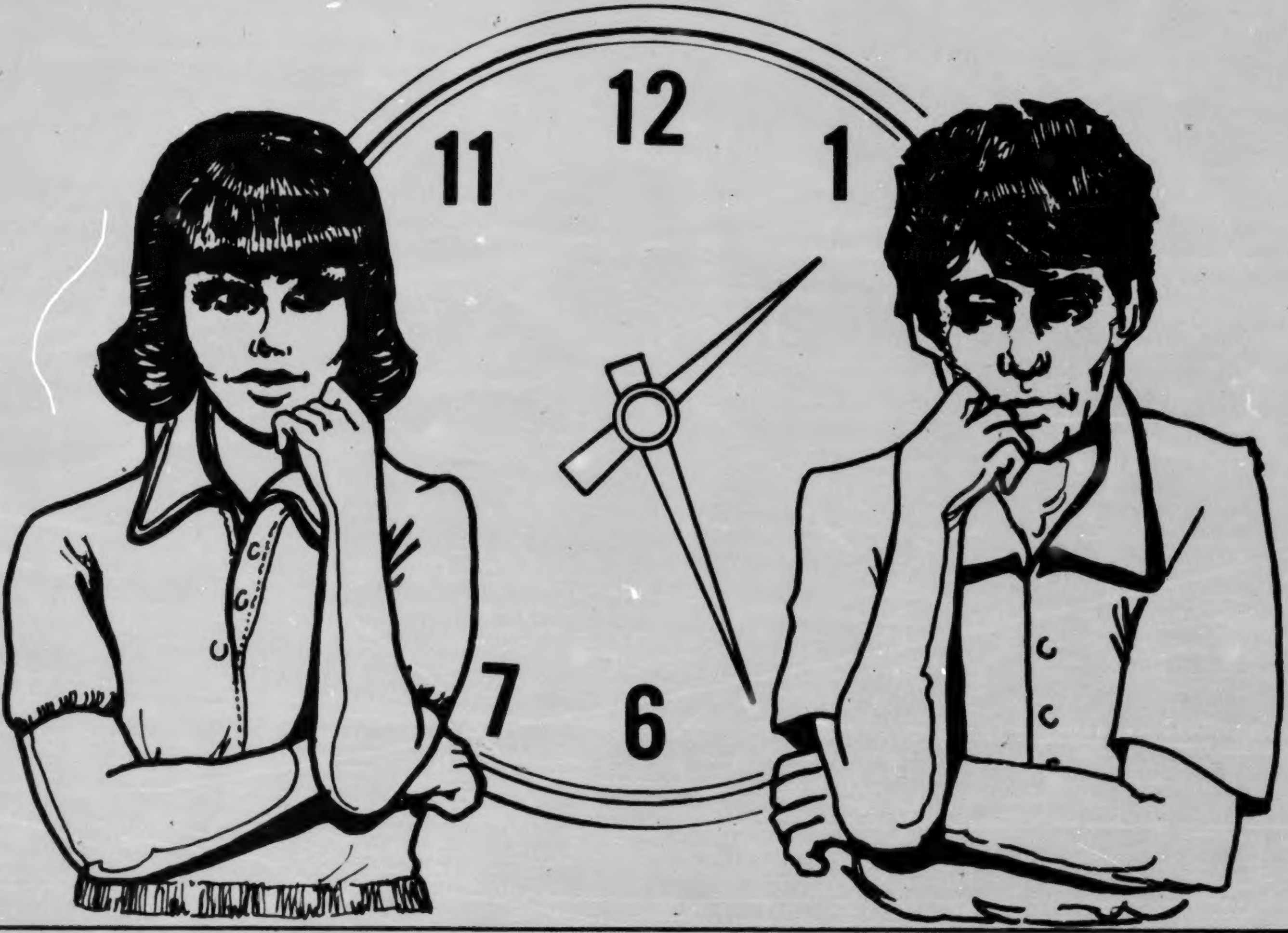
  F. Make sure bed covering is adequate.

  G. Wear comfortable sleep wear.

  H. Make sure room is well ventilated.

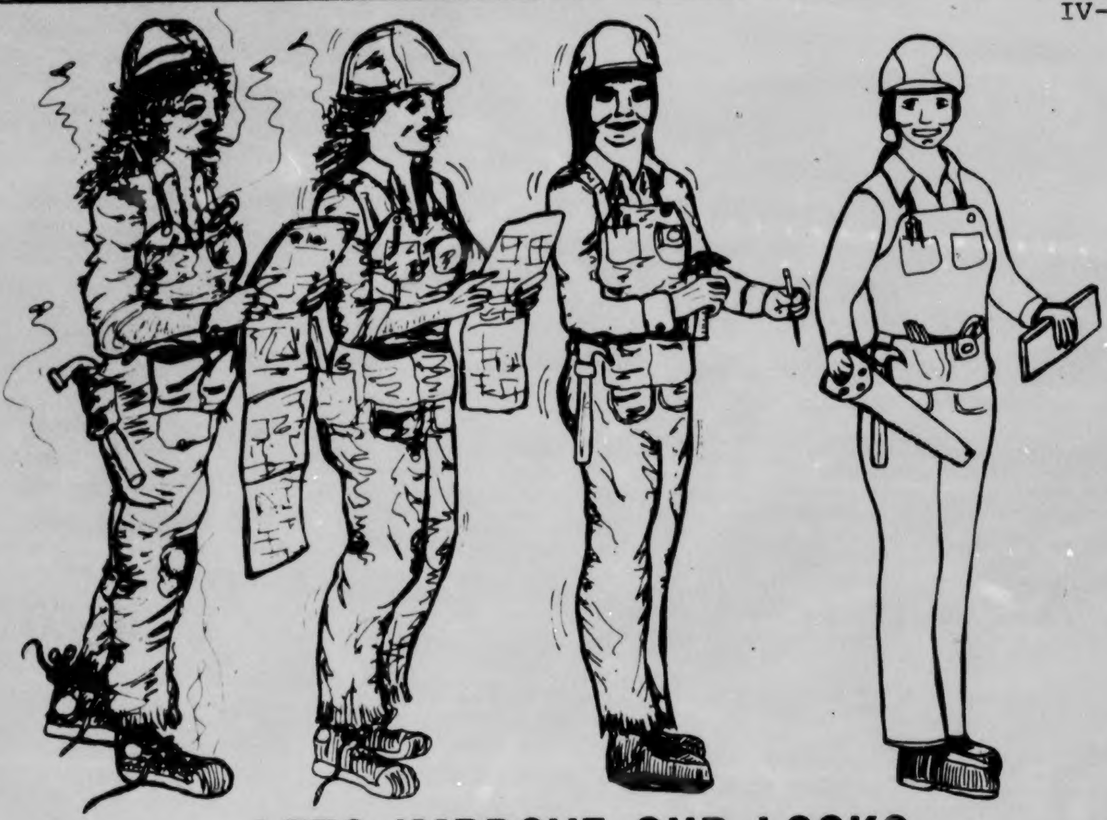
  I. Darken room and shut out noises.

HOW WILL YOU SPEND YOUR GROOMING TIME?

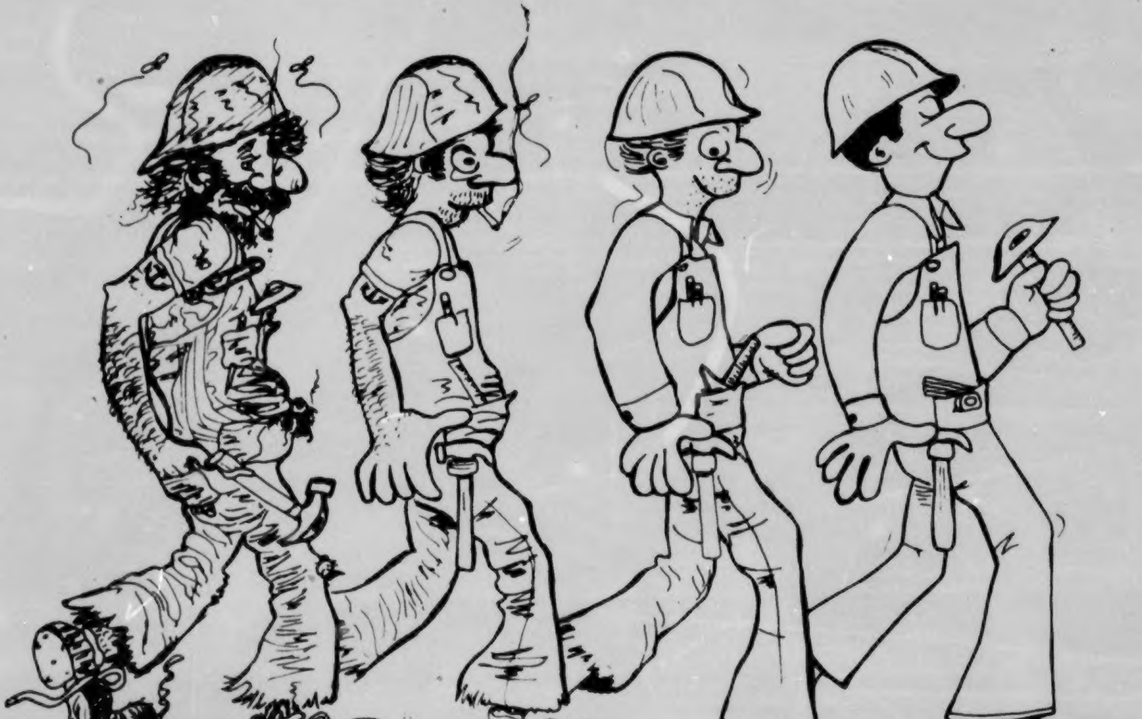


TM-1

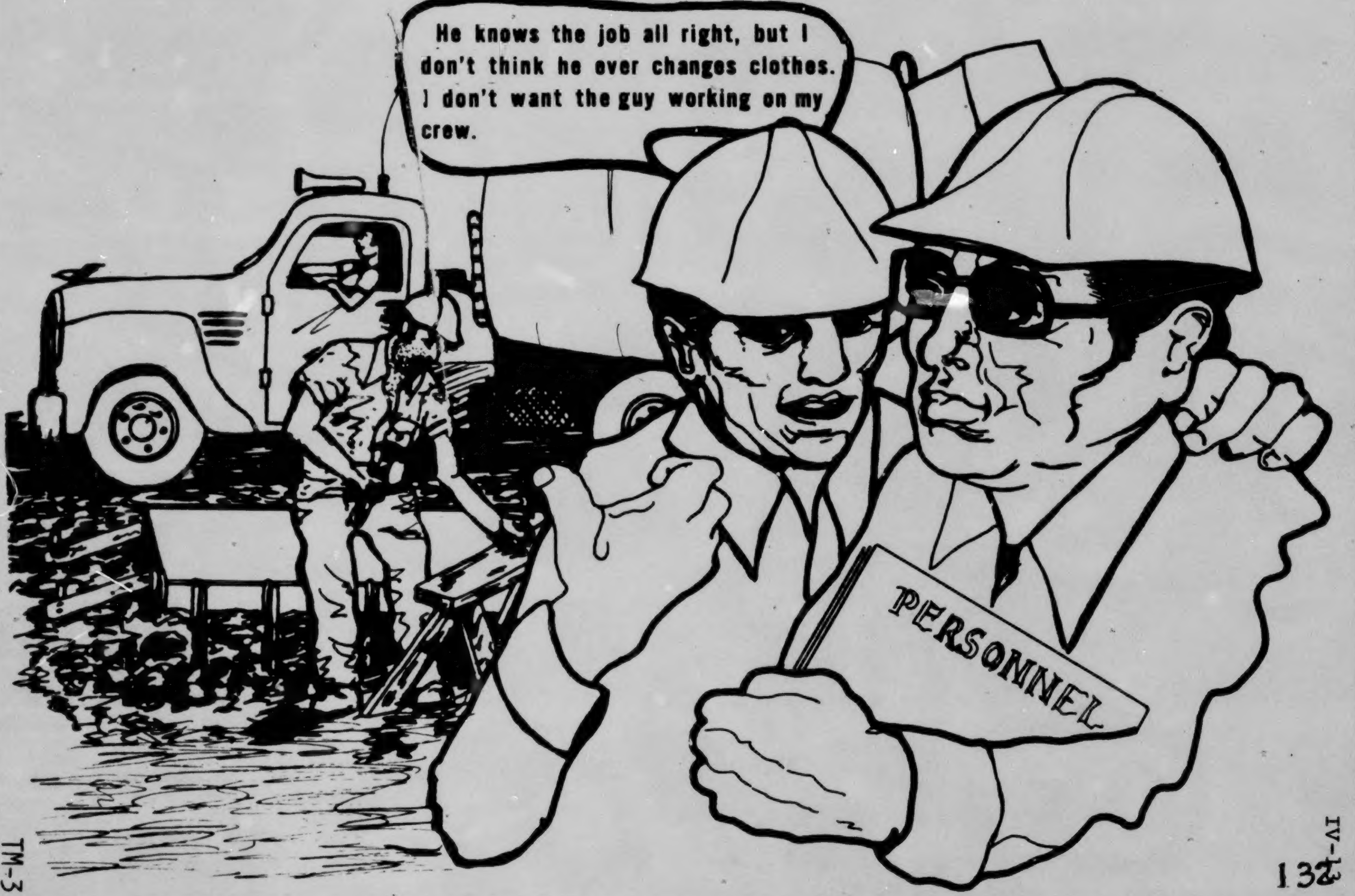
IV-9



LETS IMPROVE OUR LOOKS



PERSONAL HYGIENE


He knows the job all right, but I don't think he ever changes clothes. I don't want the guy working on my crew.
PERSONNEL

TM-3

IV-13

BASIC FOOD GROUPS

Milk Group

Meat Group

Vegetables and Fruits

Breads and Cereals

TM-4

UNIT IV

GROOMING AND HYGIENE

ASSIGNMENT SHEET #1--GROOMING SELF ANALYSIS

Directions: Rate yourself on each of the following questions. Use a scale of "6" Always, "4" Usually, "2" Occasionally, and "0" Never. When you have completed the evalustion, total your score and compare it to the rating scale provided.

QUESTIONS	RATING
1. Do you take a bath or shower daily?	______
2. Do you use an effective deodorant or antiperspirant daily?	______
3. Do you use a foot spray or powder daily?	______
4. Do you shave as often as needed?	______
5. Do you put on clean undergarments daily?	______
6. Do you put on clean socks daily?	______
7. Do you clean your face thoroughly at least twice a day (more often if you have oily skin)?	______
8. Do you use hand cream when hands become dry and cracked?	______
9. Do you check eyebrows daily for stray hairs that need to be removed?	______
10. Do you clean fingernails daily?	______
11. Do you wash hair as often as needed?	______
12. Do you brush hair vigorously every day?	______
13. Do you have hair cut or trimmed regularly?	______
14. Do you use a dandruff shampoo and/or cream rinses and conditioner if needed?	______
15. Do you brush your teeth at least twice daily?	______
16. Do you use a mouthwash daily?	______

17. Do you get enough sleep and rest so that you feel refreshed? ______

18. Do you take a good look at yourself in a full mirror before leaving the house? ______

19. Do you take a few minutes during the day to freshen your looks and comb your hair? ______

20. Do you use breath freshners during the day or after eating foods with unpleasant odors? ______

TOTAL ____________

Rating:

104 - 120	You take pride in your appearance.
88 - 103	You'd probably pass inspection.
73 - 87	You're not really trying.
Less than 73	Your best friend won't even tell you.

UNIT IV

GROOMING AND HYGIENE

ASSIGNMENT SHEET #2--HYGIENE, GROOMING AND FOODS

Directions: Construct a poster for one of the following areas.

1. Food groups and examples of each

2. Proper and improper dress

3. Proper hygiene and grooming habits

UNIT IV

GROOMING AND HYGIENE

ASSIGNMENT SHEET #3--CLOTHING SELECTION

Directions: Using a specified amount of money, plan your clothing for a week using one or more department store catalogs. This clothing should include both leisure-time and work wear. Make sure the clothing does not cost more than the amount of money budgeted.

UNIT IV

GROOMING AND HYGIENE

UNIT TEST

1. Match the terms on the right to their correct definition by placing the correct number in the blank provided.

____a. A timetable of activities

____b. Beauty-aid products

____c. Words of praise or approval

____d. Bodily reactions to various foods, fibers, etc.

____e. Jewelry and additional clothing items

____f. Being tired

____g. Spotlessly clean

____h. To file and buff nails and to trim cuticles

____i. Skin disease common with teenagers

____j. A substance used to make skin smooth and soft

____k. Looking at different things and describing how they are similar or different

____l. Preparation that keeps the underarms dry and odor-free

____m. Thin dead skin at the sides of a fingernail or toenail

____n. The ability to adjust to various situations

____o. Lotions containing some alcohol and usually patted on the face

1. Accessories
2. Acne
3. Adaptable
4. Allergies
5. Antiperspirant
6. Astringents
7. Comparison
8. Compliment
9. Conspicuous
10. Cosmetics
11. Cuticle
12. Fatigue
13. Immaculate
14. Lotion
15. Manicure
16. Schedule

____p. Something that is obvious, noticeable, and usually not in good taste

2. Select the good grooming habits by circling the letter of the correct answers.

   a. Bathe weekly

   b. Exercise regularly

   c. Get sufficient sleep

   d. Brush teeth seldom

   e. Eat regular meals

   f. Shave as often as required

   g. Clean and manicure nails

   h. Do not brush hair

   i. Use deodorant or antiperspirant

   j. Shampoo hair as needed

   k. Wear extreme clothing styles

   l. Practice good posture

3. Point out the things to consider when selecting clothing by circling the letters of the correct answers.

   a. Practicality and ease in care

   b. Fit and comfort

   c. Wild styles

   d. One's personality

   e. Figure problems

   f. Most expensive items

   g. First impression of item

   h. Fabric type and upkeep

   i. Color line and style

j. Life expectancy of item

k. Is it different from other clothing?

l. Is the clothing safe to wear for work?

m. Is the clothing clean, well-fitting, and suitable for work?

4. Point out the types of foods and recommended daily servings for teenagers for each of the basic food groups. Choose the correct answers from the list below. Use the same answer as many times as necessary.

Foods Choice	Servings Choice
Cheese and other dairy products	One serving
Beef, fish, and poultry	Two servings
Beans, tomatoes, and oranges	Three servings
Grain products	Four servings

Food	Serving
a. Vegetables and fruits	________
b. Meats	________
c. Breads and cereals	________
d. Milk	________

5. Point out the good sleeping habits by placing a "√" in front of each.

____a. Exercise daily.

____b. Eat plenty of food late in the evening.

____c. Go to bed at different times each night.

____d. Plan an exciting evening before bedtime.

____e. Avoid worrying when getting to bed.

____f. Make sure you get plenty of rest.

____g. Wear comfortable sleepwear.

____h. Make sure the room is well ventilated.

____i. Leave the room light on and the door open.

6. Analyze personal grooming habits.

7. Construct posters representing food groups, proper dress, and personal hygiene.

8. Plan and select the clothing required for a week.

(Note: If activities #6, #7, and #8 have not been completed prior to the test, ask the instructor when they should be completed.)

UNIT IV

GROOMING AND HYGIENE

ANSWERS TO TEST

1. a. 16
   b. 10
   c. 8
   d. 4
   e. 1
   f. 12
   g. 13
   h. 15
   i. 2
   j. 14
   k. 7
   l. 5
   m. 11
   n. 3
   o. 6
   p. 9
2. b.
   c.
   e.
   f.
   g.
   i.
   j.

l.

3. a.

b.

d.

e.

h.

i.

j.

l.

m.

4. a. Beans, tomatoes, and oranges - Four servings

b. Beef, fish, and poultry - Two servings

c. Grain products - Four servings

d. Cheese and other dairy products - Four servings

5. a. ✓

b.

c.

d.

e. ✓

f. ✓

g. ✓

h. ✓

6. Evaluated to the satisfaction of the instructor

7. Evaluated to the satisfaction of the instructor

8. Evaluated to the satisfaction of the instructor

UNIT V

HAND TOOLS

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify hand tools and terms associated with the use of hand tools and point out the safety factors involving the use of hand tools. The student will be able to repair and sharpen hand tools. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completing this unit of instruction, the student will be able to:

1. Match the terms associated with hand tools to the correct definitions.
2. Select the correct methods of using and caring for hand tools.
3. Identify the types of rules.
4. Identify the types of squares.
5. Identify the types of layout tools.
6. Identify the types of levels.
7. Identify the types of handsaws.
8. Identify the types of planes.
9. Identify the types of cutting and scraping tools.
10. Identify the types of drilling and boring tools.
11. Identify the types of files.
12. Identify the types of pliers.
13. Identify the types of screwdrivers.
14. Identify the types of clamps and vises.
15. Identify the types of wrenches.
16. Identify the types of hammers.

17. Identify the types of prying and punching tools.
18. Select the correct tool for a job.
19. Prepare a list of tools for a specified job.
20. Demonstrate the ability to:
    a. Replace a wood hammer handle.
    b. Grind a standard screwdriver.
    c. Grind a mushroomed chisel or punch.
    d. Sharpen a cold chisel.
    e. Sharpen a twist drill bit.
    f. Sharpen an auger bit.
    g. Hone a wood chisel.
    h. Grind a plane iron.

UNIT V

HAND TOOLS

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide objective sheet

   B. Discuss objective sheet

   C. Pass out information sheet

   D. Discuss information sheet

   E. Make and show transparencies

   F. Distribute and discuss assignment and job sheets

   G. Demonstrate procedures outlined in job sheets

   H. Give test

II. Student:

   A. Read and discuss objective sheet

   B. Read and discuss information sheet

   C. Complete assignment and job sheets

   D. Take test

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

      1. Information Sheet #1--Terminology and Safety

      2. Information Sheet #2--Measuring and Layout

      3. Information Sheet #3--Woodcutting Tools

      4. Information Sheet #4--Holding and Adjusting Tools

5. Information Sheet #5--Hammers and Punches

C. Transparency masters

1. V-TM-1--Parts of a Claw Hammer
2. V-TM-2--Parts of a Screwdriver
3. V-TM-3--Parts of an Auger Bit
4. V-TM-4--Parts of a Brace
5. V-TM-5--Parts of a Plane
6. V-TM-6--Types of Rules
7. V-TM-7--Types of Squares
8. V-TM-8--Other Layout Tools
9. V-TM-9--Types of Levels
10. V-TM-10--Types of Saws
11. V-TM-11--Types of Planes
12. V-TM-12--Other Cutting and Scraping Tools
13. V-TM-13--Types of Drilling and Boring Tools
14. V-TM-14--Types of Files
15. V-TM-15--Types of Pliers
16. V-TM-16--Types of Screwdrivers
17. V-TM-17--Types of Clamps and Vises
18. V-TM-18--Types of Wrenches
19. V-TM-19--Types of Hammers
20. V-TM-20--Types of Prying and Punching Tools

D. Assignment sheets

1. Assignment Sheet #1--Select the Correct Tools for a Job
2. Assignment Sheet #2--Prepare a List of Tools for a Specified Job

E. Answers to assignment sheets

F. Job sheets

1. Job Sheet #1--Replace a Wood Hammer Handle
2. Job Sheet #2--Grind a Standard Screwdriver
3. Job Sheet #3--Grind a Mushroomed Chisel or Punch
4. Job Sheet #4--Sharpen a Cold Chisel
5. Job Sheet #5--Sharpen a Twist Drill Bit
6. Job Sheet #6--Sharpen an Auger Bit
7. Job Sheet #7--Hone a Wood Chisel
8. Job Sheet #8--Grind a Plane Iron

G. Unit test

H. Answers to unit test

II. References

A. Durban, Walter E. Fundamentals of Carpentry Tools: Materials and Practices, Volume I. Chicago: American Technical Society, 1967.

B. Educational Department. Stanley Tool Guide. New Britain: Division of the Stanley Workds.

C. McDonald, Leo P. The Use of Hand Woodworking Tools. Albany: Delmar Publishers, Inc., 1962.

D. Wagner, Willis H. Modern Carpentry. Chicago: Goodheart-Wilcox Company, Inc., 1976.

UNIT V

HAND TOOLS

INFORMATION SHEET #1--TERMINOLOGY AND SAFETY

I. Terms and definitions

A. Straightedge--A straight strip of wood or metal used with a level or for marking straight lines

B. Perpendicular--At a 90° angle to a surface

C. Planing--Trimming and fitting wood with a sharp-edged tool

D. Drilling--Forming a hole with a drill

E. Boring--Forming a hole larger than 1/4 inch with an expansion bit

F. Honing--Removing the wire edge from sharpened blades with an oilstone

G. Bevel--The ground or angular surface on a chisel or plane iron

H. Set--The staggering of teeth on a saw so that the body of the saw does not bind.

I. Kerf--The width of the slot the saw leaves in the wood

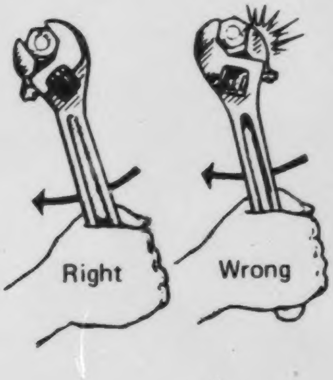
J. Convex--An outward rounded or bell-faced surface

K. Wedges--Small pieces of metal driven into the head of a hammer to keep it in place

L. Plumb--A straight up and down or vertical position

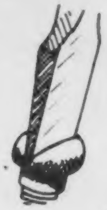
II. Tool safety and care

A. Use tools correctly

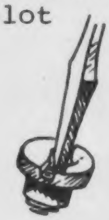


B. Keep tools working properly

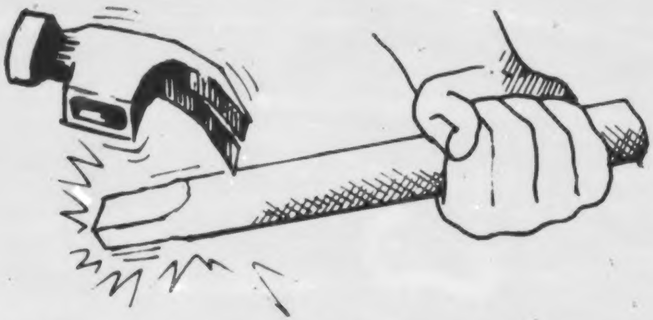
A Correct Screwdriver Fit



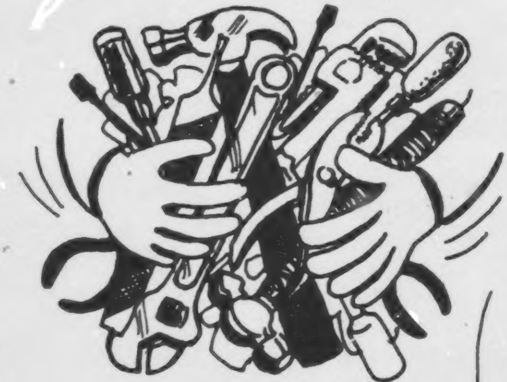
A Poor Fit Damages The Screwdriver and Screw Slot



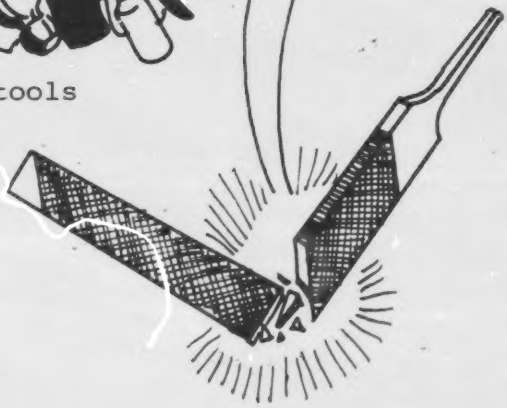
C. Check hammer heads before use



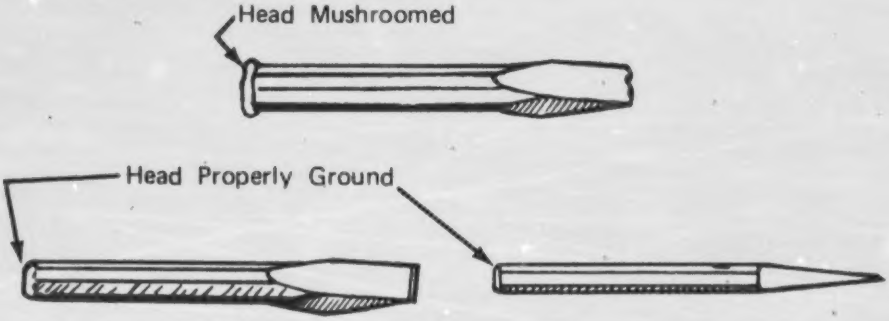
D. Do not carry more tools than you can handle



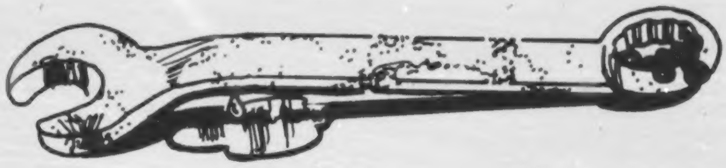
E. Do not drop tools



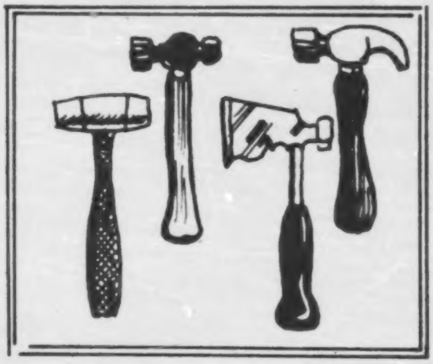
F. Keep sharpened tools sharp


Head Mushroomed
Head Properly Ground

G. Keep tools clean and dry



H. Return tools to their storage area after use



UNIT V

HAND TOOLS

INFORMATION SHEET #2--MEASURING AND LAYOUT

III. Types of rules

   A. Folding wood rule--Most-used measuring device

   B. Steel tape--Comes in lengths of 6 feet and longer

   C. Yardstick--Used for measuring less than 36 inches

   D. 24-inch rule--Used for measuring less than 24 inches

   E. 12-inch rule--Used for measuring less than 12 inches

IV. Types of squares

   A. Framing--Used by the carpenter for framing layout

   B. Combination--An adjustable bladed square used for miter layout

   C. Try square--with 6- to 12-inch blades and wood handles used to check surfaces for squareness or to layout lines perpendicular to an edge

   D. Swanson speed--A triangular-shaped aluminum square used in rafter layout

V. Other layout tools

   A. T-bevel--An adjustable bladed device used to transfer an angle from one piece to another

   B. Dividers--A tool with two pointed legs used to transfer measurements or scribe arcs and circles

   C. Marking guage--Used to layout lines parallel to a surface

   D. Butt gauge--Used to layout the recessed area for hinges

   E. Scratch awl--Used to scratch lines on the surface of material

   F. Chalk line--A chalk-coated string or line used to mark long, straight lines

G. Plumb bob--A line or string with a balanced weight used for checking vertical lines

VI. Types of levels

A. Carpenter's--Used to layout vertical and horizontal lines

(NOTE: Usually 2 to 6 feet long.)

B. Line--Small level attached to a string to level long distances

C. Torpedo--A short level used in tighter places

D. Level-transit--Used to level or plumb construction lines

1. Tripod--A mount for the transit with adjustable legs

2. Leveling rod--A rod broken into feet and inches used with the transit to level over long distances

UNIT V

HAND TOOLS

INFORMATION SHEET #3--WOODCUTTING TOOLS

VII. Types of saws

- A. Crosscut--Used to cut across the wood grain

  (NOTE: This saw has 4 to 12 points per inch.)

- B. Rip--A saw with a wide set to allow it to run freely

  (NOTE: Most rip saws have 5 1/2 points per inch, however, most ripping operations are done with power saws.)

- C. Backsaw--A thin-bladed saw with fine teeth and a steel backing strip used for finer finish work
- D. Keyhole--Used for cutting unusual shapes or in tight areas
- E. Hacksaw--Used in cutting metal parts such as tubing or bolts

VIII. Types of planes

- A. Jack--Used for general-purpose planing
- B. Rabbet--Used for cutting different joints
- C. Block--A small plane used in fitting and trimming work
- D. Surform--Used in removing large amounts of wood
- E. Cabinetmaker's--Used in trim and finish work on cabinets

IX. Other cutting and scraping tools

- A. Chisels--Used to cut or trim wood for joints or recesses
- B. Utility knife--Used for cutting and trimming small pieces of wood, string, plastics, or other material

  (NOTE: Razor-edged blades can be obtained for replacements.)

C. Putty knife--Used for applying or removing putty and wood fillers

D. Scraper--A hooked, bladed tool used for removing thin layers of wood, paint, or other coatings

E. Cornering tool--Used to remove sharp corners on exposed wooden parts

X. Types of drilling and boring tools

A. Brace--A ratchet-action drill using auger bits which allows holes to be drilled in corners

B. Hand drill--A small drill using twist drill bits

C. Push drill--Used with twist drills to drill small holes quickly

D. Auger bit--Used in a brace to drill holes larger than 1/4 inch

E. Expansive bit--Adjustable bit used for drilling larger holes

F. Twist drill--Straight shank drill bit used in drilling from the smallest hole up

G. Countersink--Used in recessing the heads of screws

XI. Types of files

A. Wood rasp--Used for rounding or shaping wood

B. Three-cornered file--Used for sharpening saw blades or auger bits

C. Flat file--Used for general-purpose sharpening

D. Half-round file--Used for rounding edges or shaping irregular shapes

E. Round file--Used for filing holes or irregular shapes

UNIT V

HAND TOOLS

INFORMATION SHEET #4--HOLDING AND ADJUSTING TOOLS

XII. Types of pliers

   A. Slip joint--All-purpose pliers

   B. Vise grip--Pliers with a locking action used for tightly holding materials

   C. Needle nose--Pointed pliers used for working in tight areas or making wire splices

   D. Channellock--Adjustable pliers used for holding objects varying in size

   E. Side cutters--Used for cutting wire and electrical work

   F. Diagonal--Used for cutting wire

XIII. Types of screwdrivers

   A. Standard--General-purpose screwdriver

   B. Cabinet--Thin-bladed screwdriver for small screws

   C. Phillips--Used on phillips head screws

   D. Offset--Used to tighten screws in hard-to-get-to places

XIV. Types of clamps and vises

   A. Hand-screw clamp--Wood-jawed clamps used in gluing

   B. C-clamps--General-purpose clamps used for finish work

   C. Bar clamp--Large clamps used in gluing

   D. Wood vise--Used for securing wood when sawing or shaping

   E. Utility vise--General-purpose vise

XV. Types of wrenches

   A. Adjustable--General-purpose wrench

B. Box end--Sized wrenches with enclosed ends

C. Open end--Sized wrenches with open ends

D. Combination--Sized wrenches with one open end and one closed end

UNIT V

HAND TOOLS

INFORMATION SHEET #5--HAMMERS AND PUNCHES

XVI. Types of hammers

- A. Claw

  (NOTE: Hammers vary in size from 7 to 20 ounces, but the 13 ounce is most popular.)

  1. Curved--Most popular hammer and best for pulling nails
  2. Straight--Used in prying lumber apart

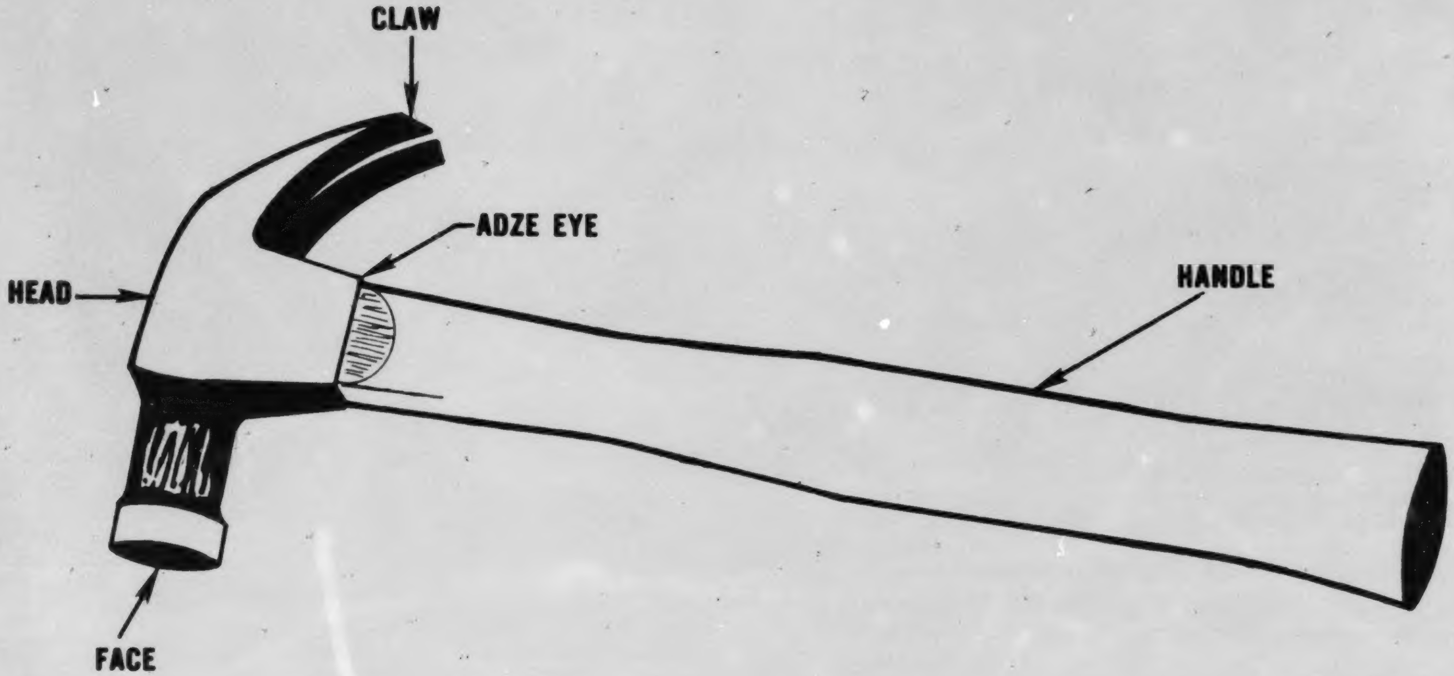
- B. Soft face--Used with chisels or staplers
- C. Ball peen--Used for driving large spikes and stakes
- D. Sledge--Used for driving stakes and building forms
- E. Half hatchet--Has a hammer face and a hatchet face which is used around form construction

XVII. Types of prying and punching tools

- A. Straight punch--Used to align bolt holes or punch material from a hole
- B. Pin punch--Used to remove shear pins or cotter pins from machinery
- C. Nail set--Used to recess the heads of finish nails
- D. Cold chisel--Used to cut off bolts, nuts, or other metal parts
- E. Ripping bar--Used to strip concrete forms, for prying, and to pull nails

  (NOTE: Also called wrecking bars.)

- F. Rip chisel--Used to pry and strip wood

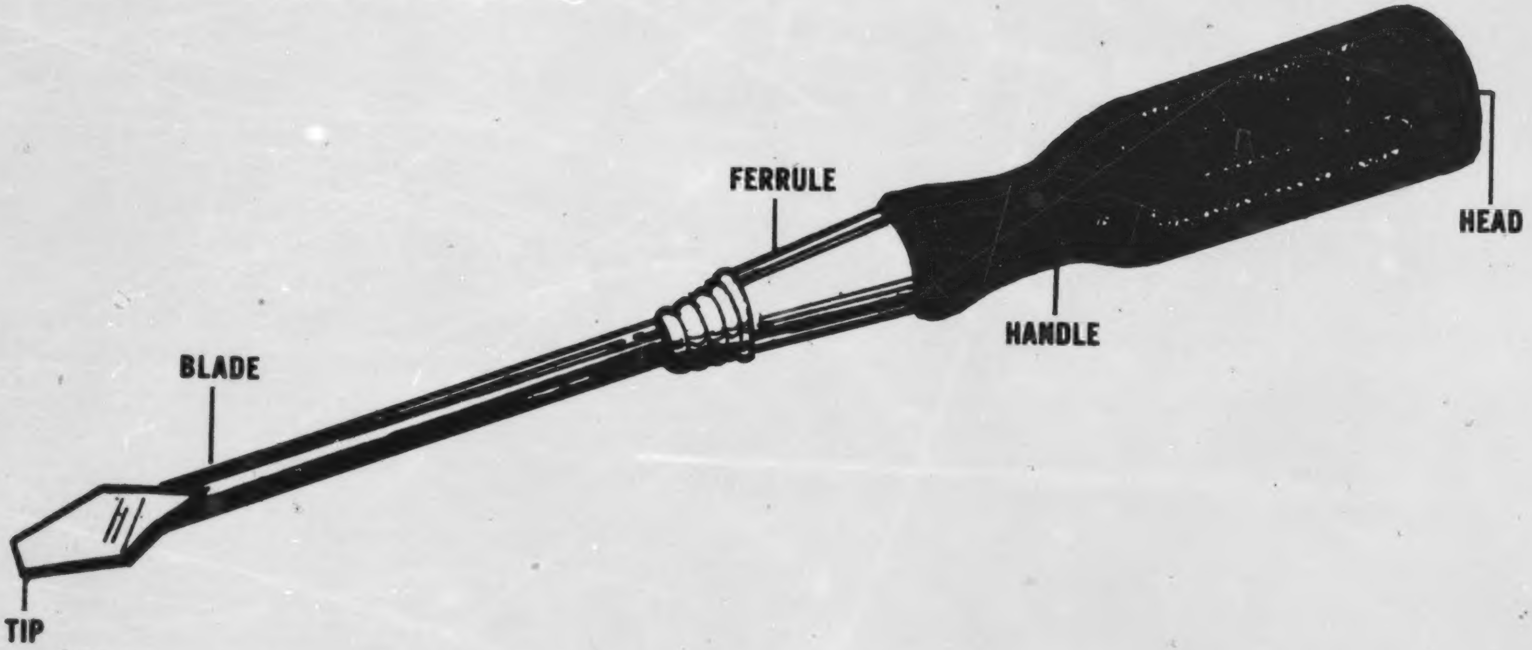

CLAW
ADZE EYE
HEAD
HANDLE
FACE

PARTS OF A CLAW HAMMER

TM-1

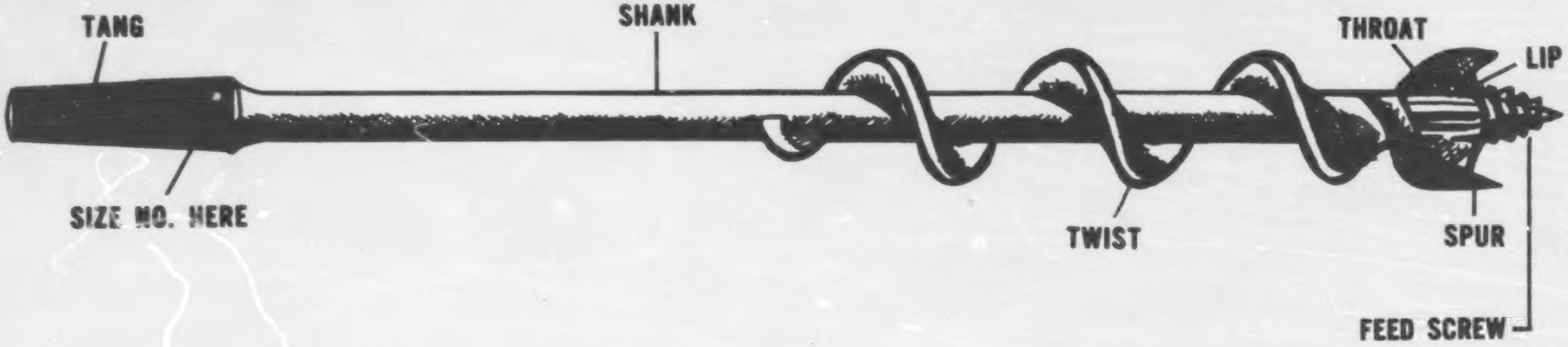
V-19

PARTS OF A SCREWDRIVER


FERRULE
HEAD
HANDLE
BLADE
TIP

TM-2

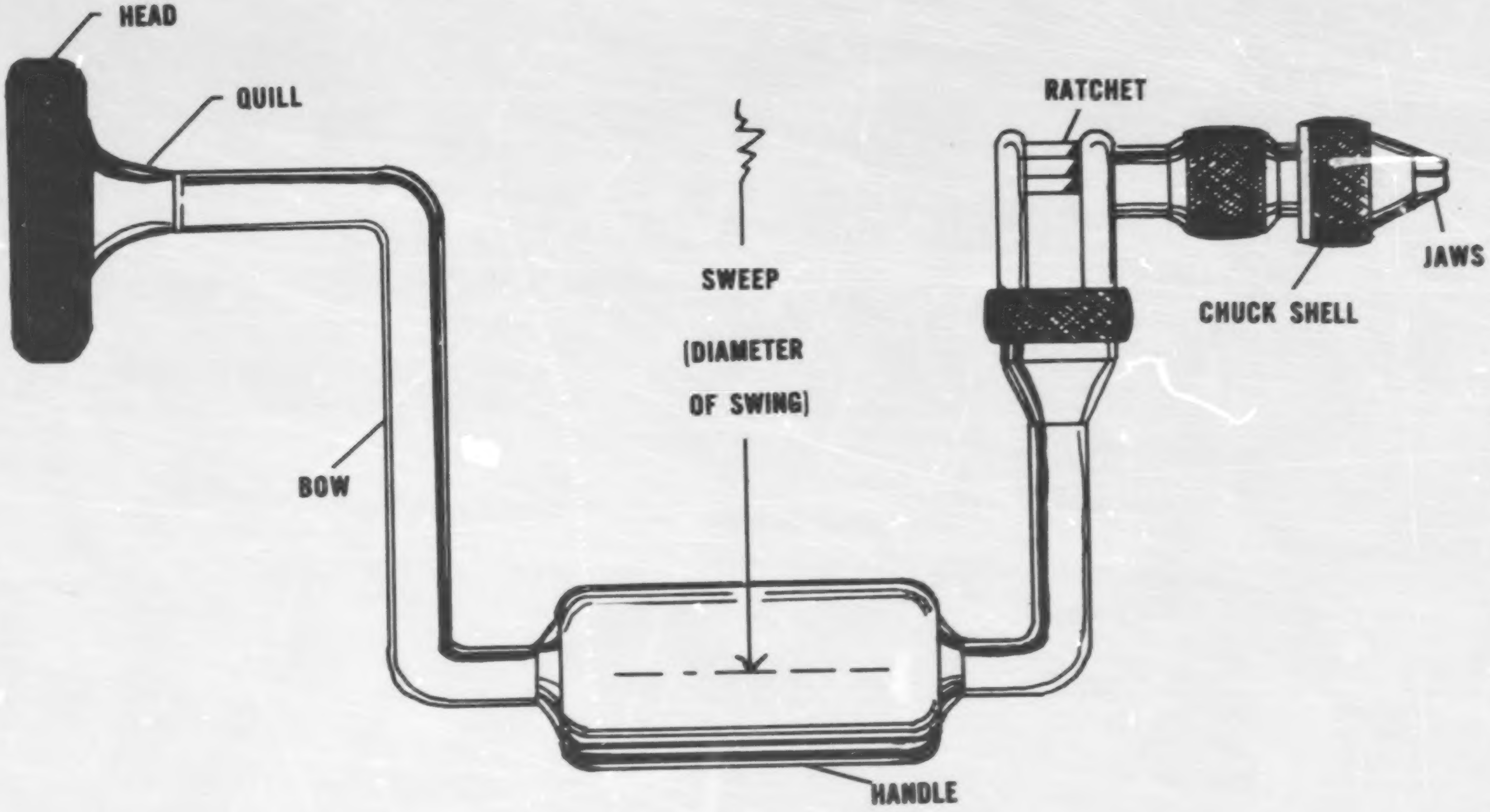
V-21


TANG
SHANK
THROAT
LIP
SIZE NO. HERE
TWIST
SPUR
FEED SCREW

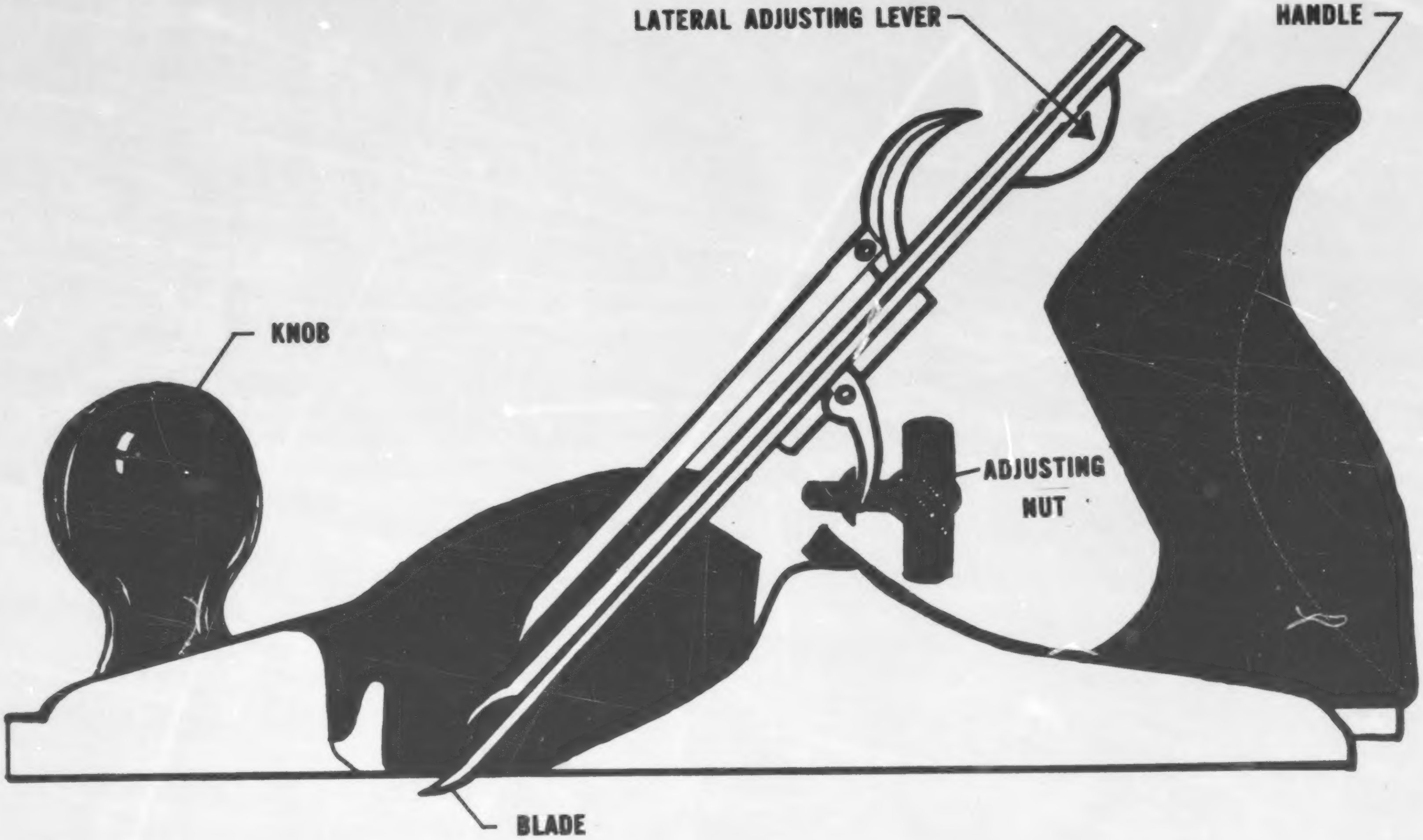
PARTS OF AN AUGER BIT

TM-3

V-23


HEAD
QUILL
BOW
SWEEP
(DIAMETER
OF SWING)
RATCHET
JAWS
CHUCK SHELL
HANDLE

PARTS OF A BRACE


LATERAL ADJUSTING LEVER
HANDLE
KNOB
ADJUSTING NUT
BLADE

PARTS OF A PLANE

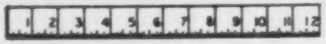
TM-5

168

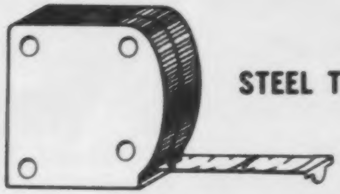
V-27

169

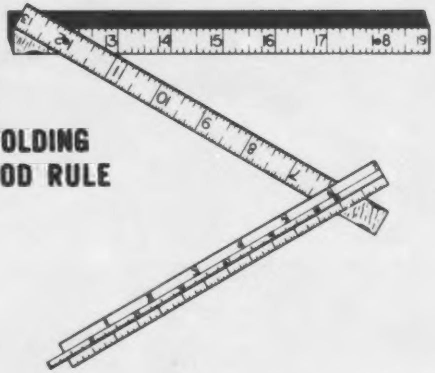
TYPES OF RULES


1 2 3 4 5 6 7 8 9 10 11 12

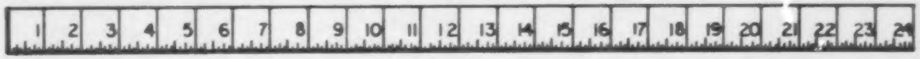
12" RULE



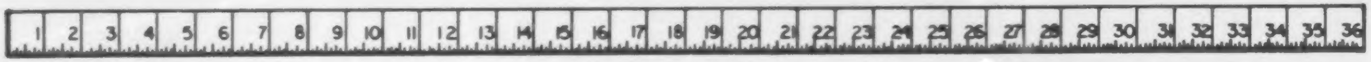
STEEL TAPE


12 13 14 15 16 17 18 19

FOLDING WOOD RULE

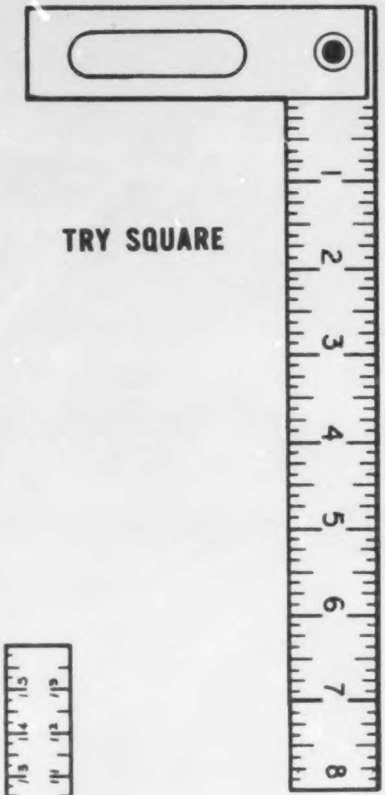

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

24" RULE

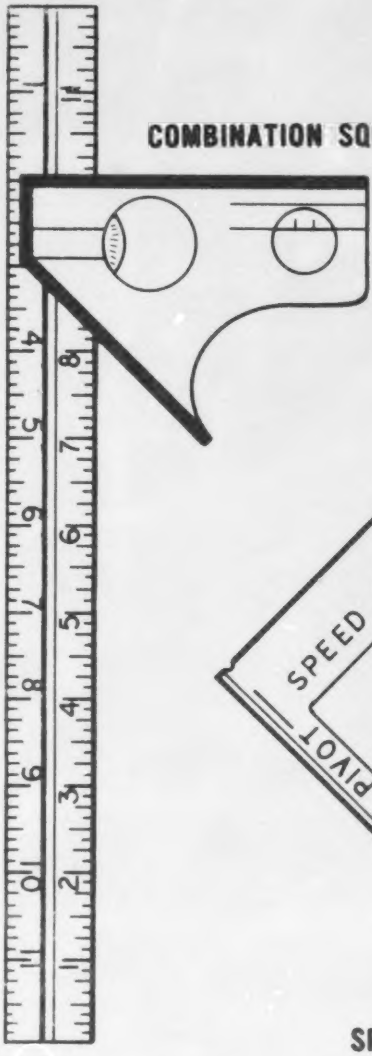

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

YARDSTICK

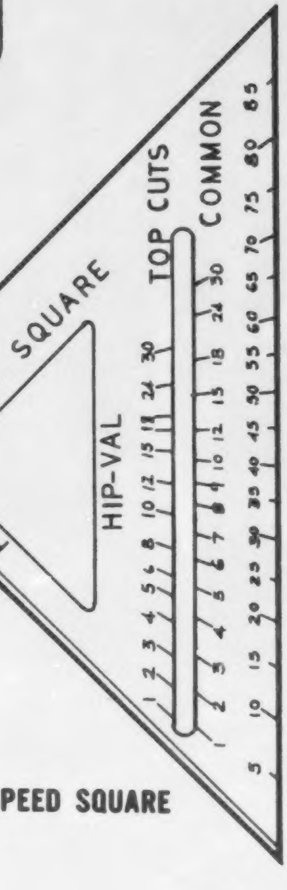
TYPES OF SQUARES



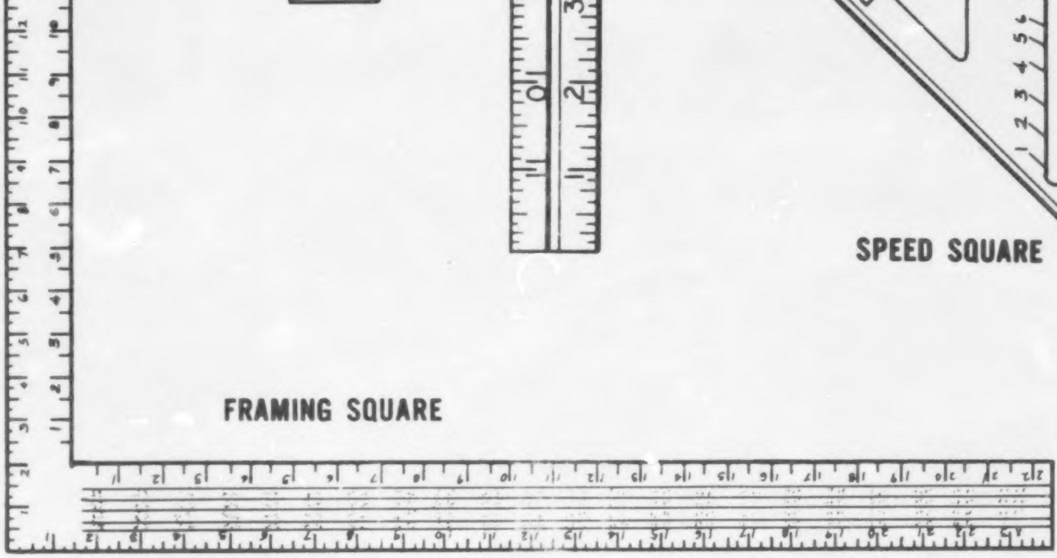
TRY SQUARE



COMBINATION SQUARE

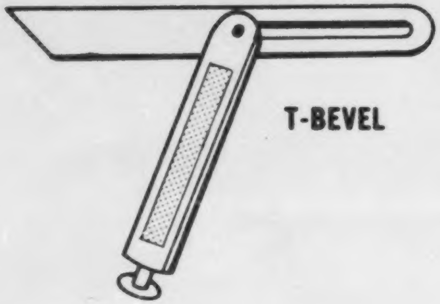

SPEED SQUARE
PIVOT
HIP-VAL
TOP CUTS
COMMON

SPEED SQUARE

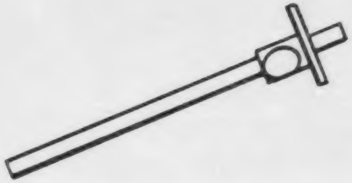


FRAMING SQUARE

172

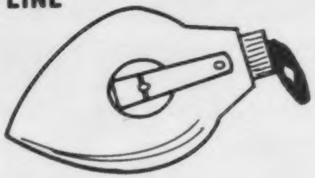


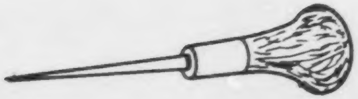
T-BEVEL



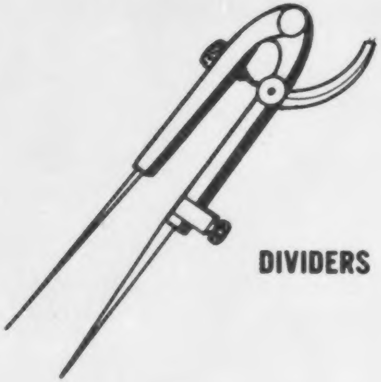
MARKING GAUGE

CHALK LINE

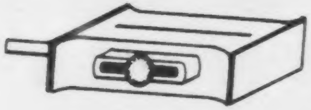




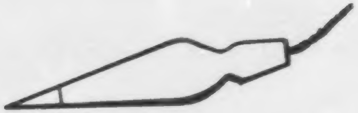
SCRATCH AWL



DIVIDERS

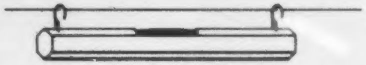


BUTT GAUGE

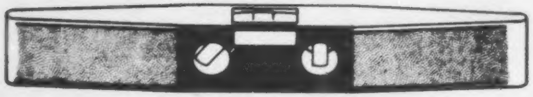


PLUMB BOB

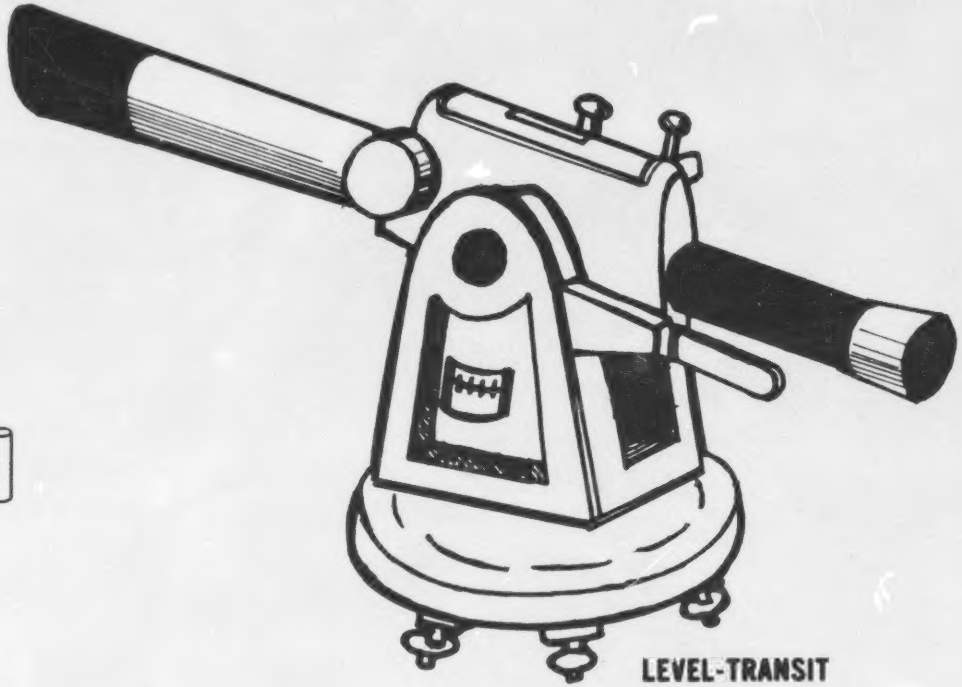
OTHER LAYOUT TOOLS



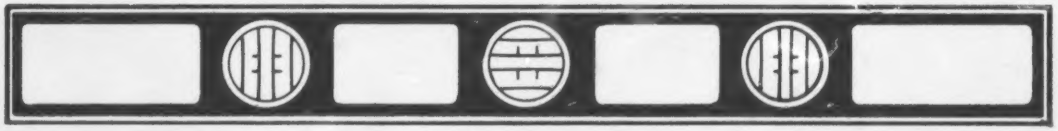
LINE LEVEL



TORPEDO LEVEL

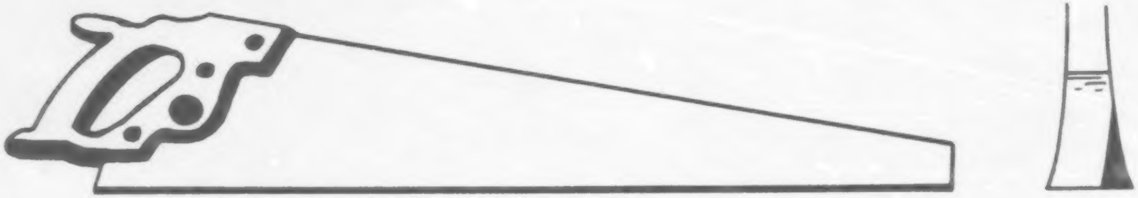


LEVEL-TRANSIT

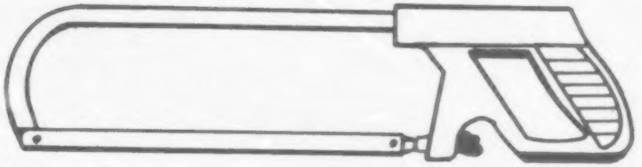


CARPENTER'S LEVEL

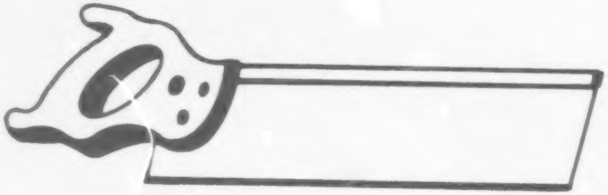
TYPES OF LEVELS



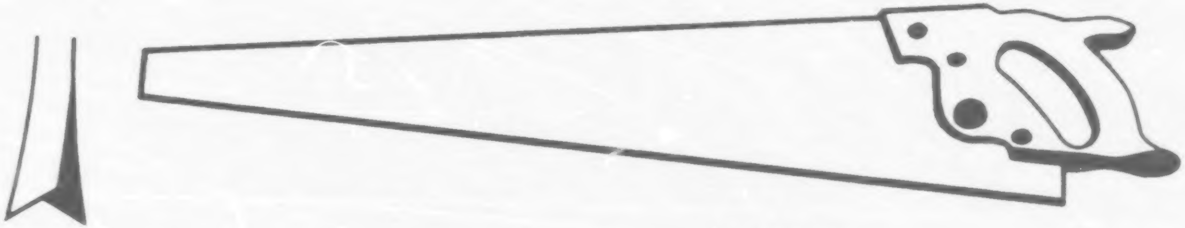
RIP SAW



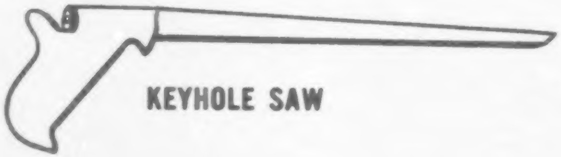
HACKSAW



BACK SAW



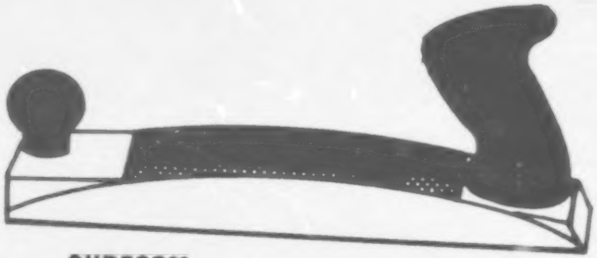
CROSSCUT



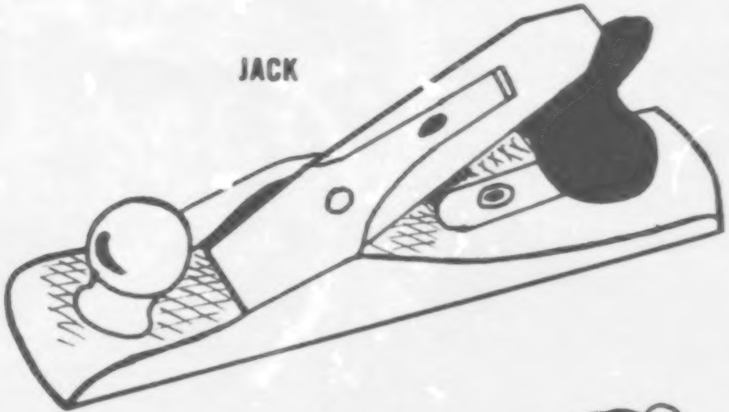
KEYHOLE SAW

TM-10

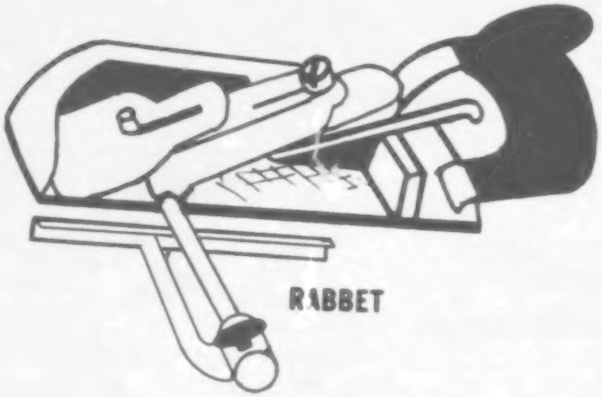
TYPES OF SAWS



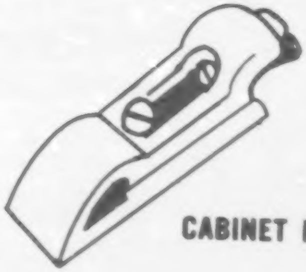
SURFORM



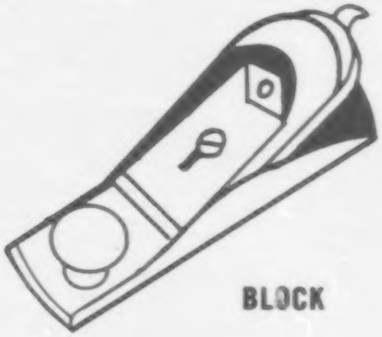
JACK



RABBET

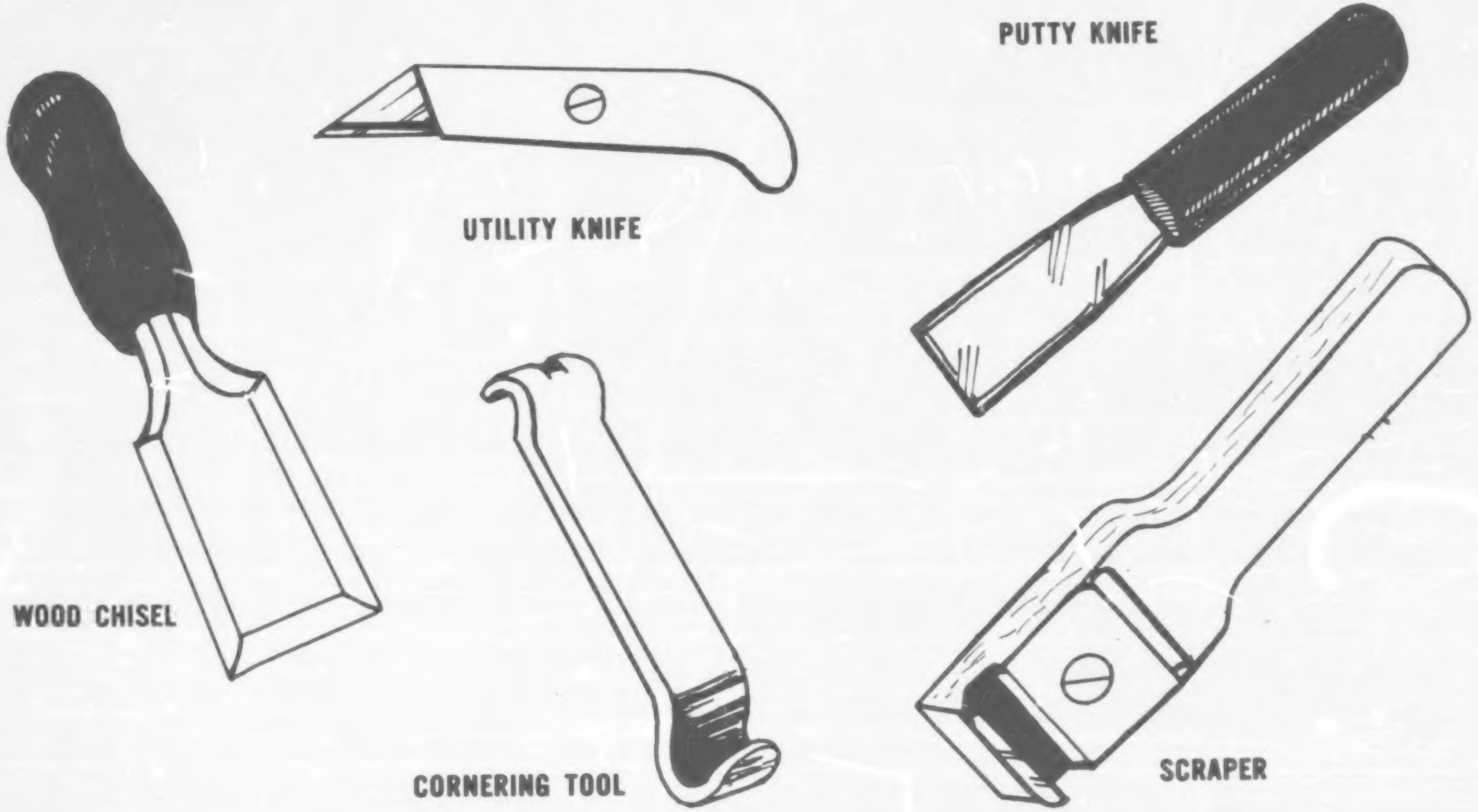


CABINET MAKERS



BLOCK

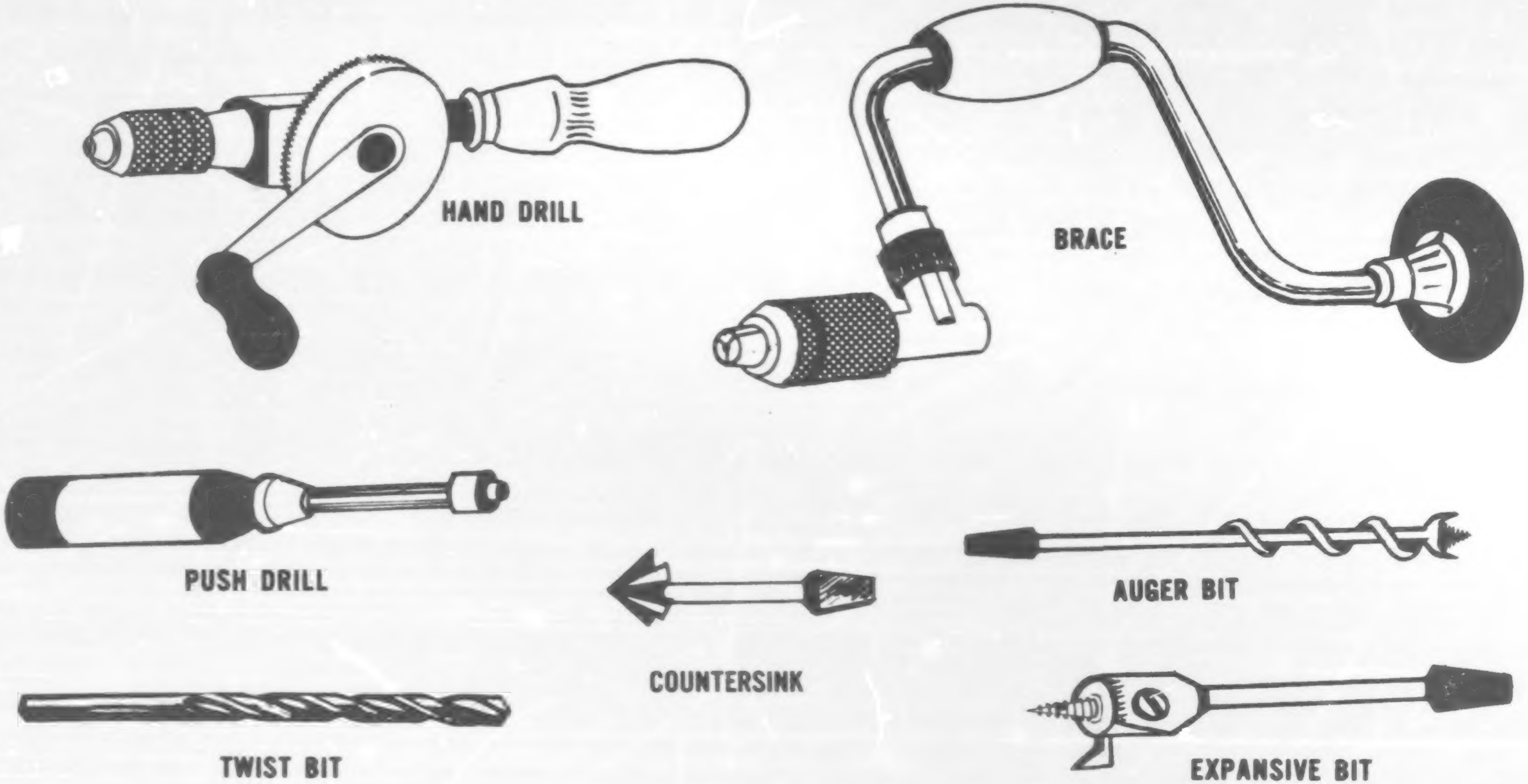
TYPES OF PLANES


PUTTY KNIFE
UTILITY KNIFE
WOOD CHISEL
CORNERING TOOL
SCRAPER

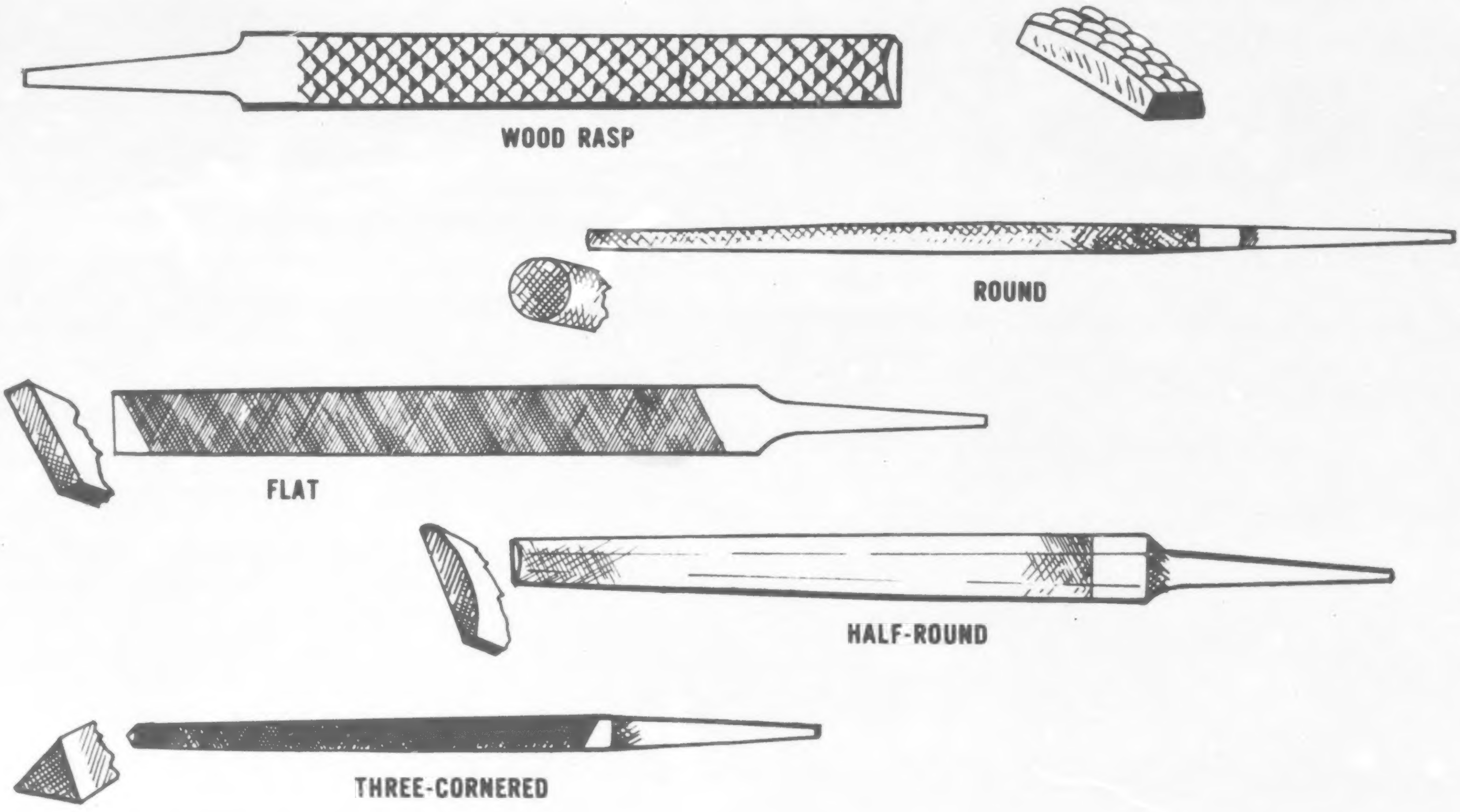
OTHER CUTTING AND SCRAPING TOOLS

TM-12

V-41


HAND DRILL
BRACE
PUSH DRILL
AUGER BIT
COUNTERSINK
TWIST BIT
EXPANSIVE BIT

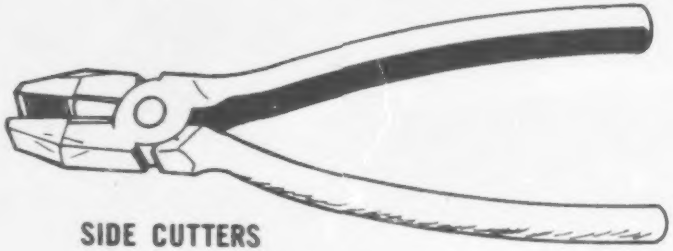
TYPES OF DRILLING AND BORING TOOLS


WOOD RASP
ROUND
FLAT
HALF-ROUND
THREE-CORNERED

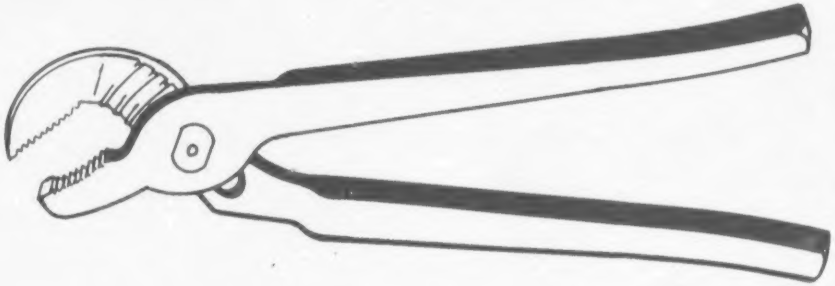
TYPES OF FILES

TM-14

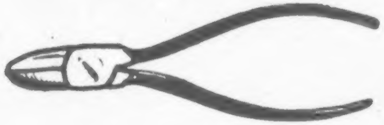
V-45



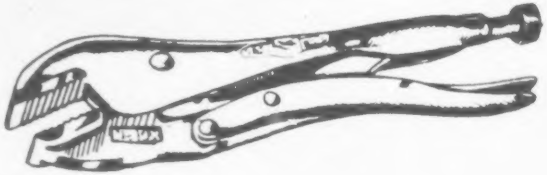
SIDE CUTTERS



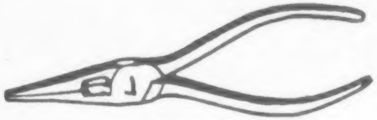
CHANNELLOCK



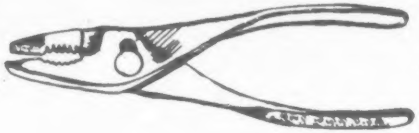
DIAGONALS



VISE GRIPS

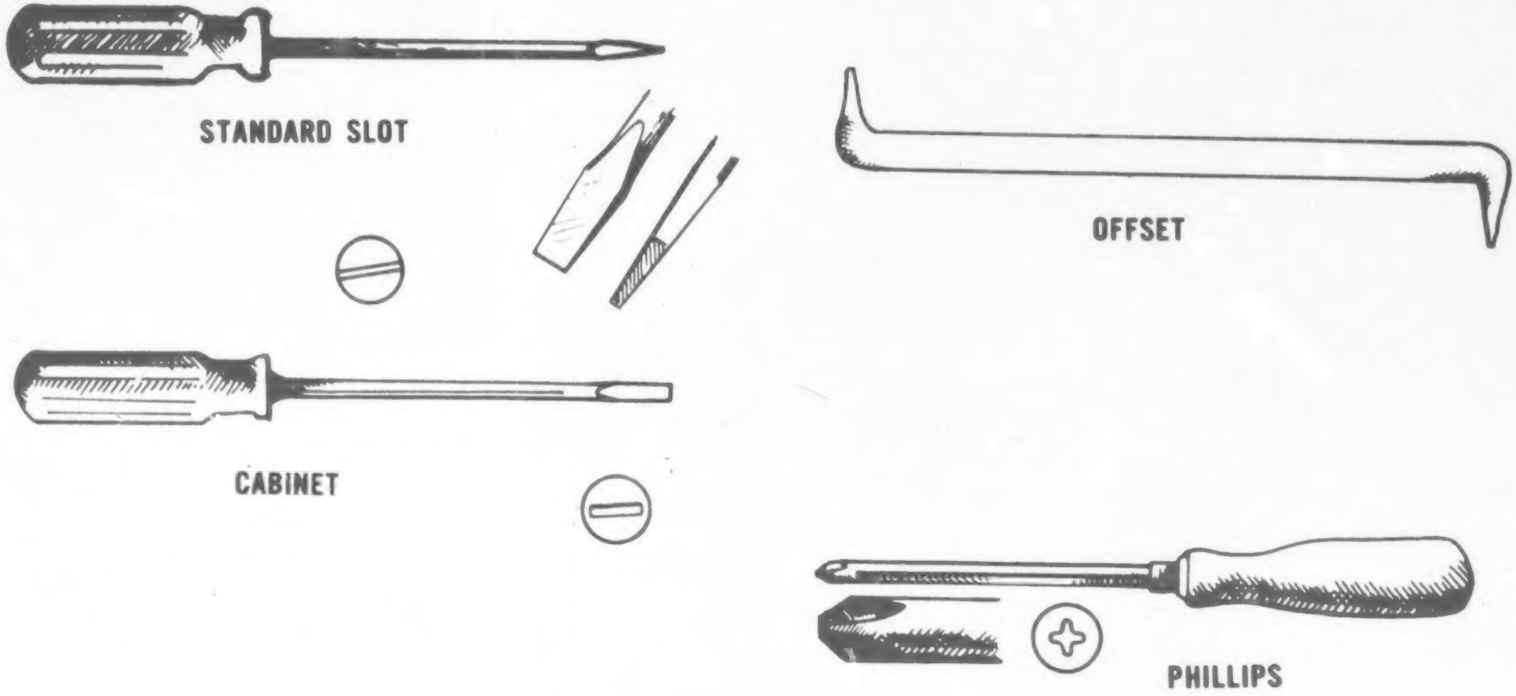


NEEDLE NOSE

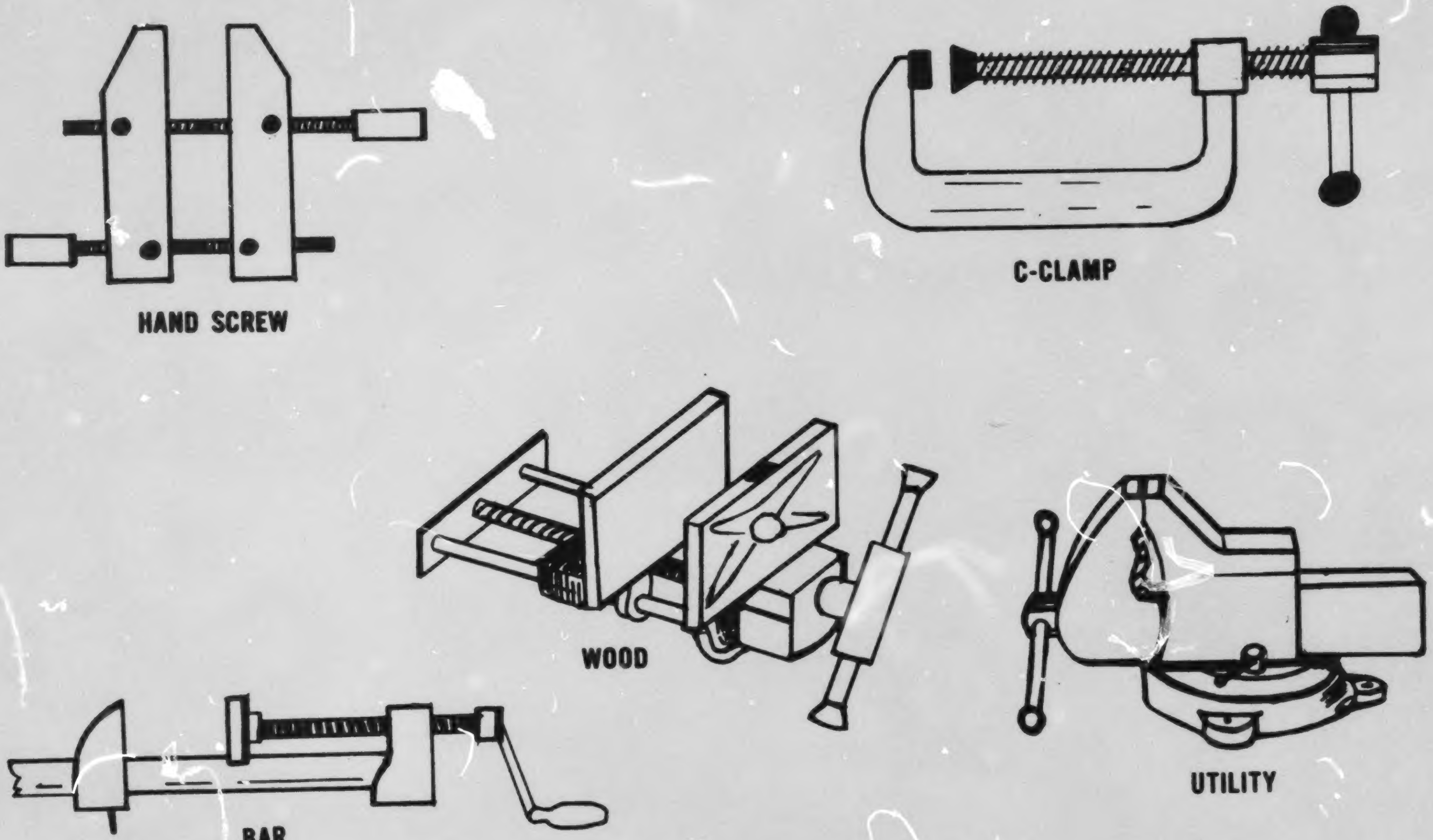


SLIP JOINT

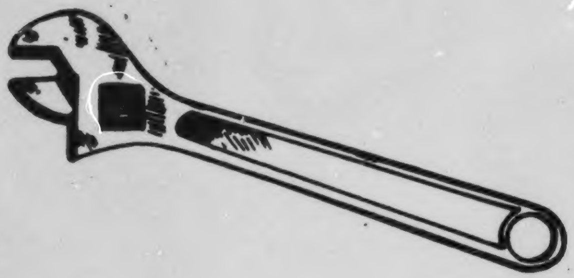
TYPES OF PLIERS


STANDARD SLOT
OFFSET
CABINET
PHILLIPS

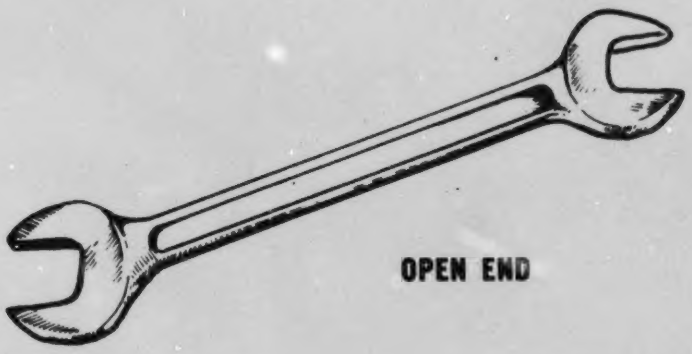
TYPES OF SCREWDRIVERS


HAND SCREW
C-CLAMP
WOOD
UTILITY
BAR

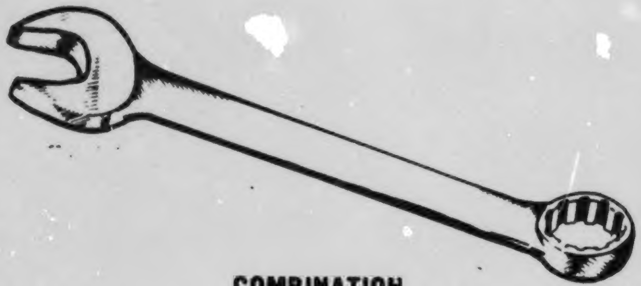
TYPES OF CLAMPS AND VISES



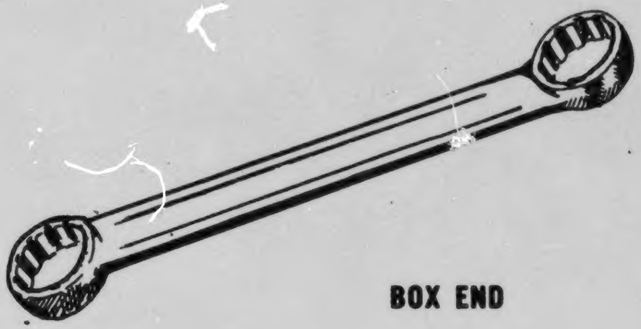
ADJUSTABLE



OPEN END

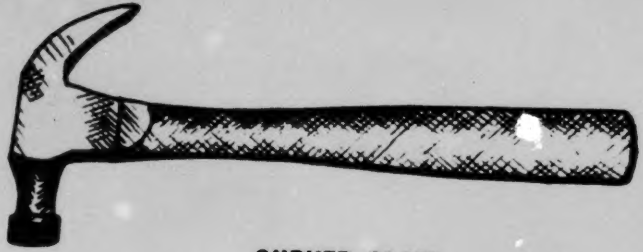


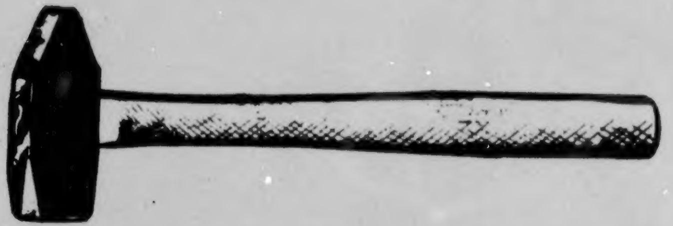
COMBINATION

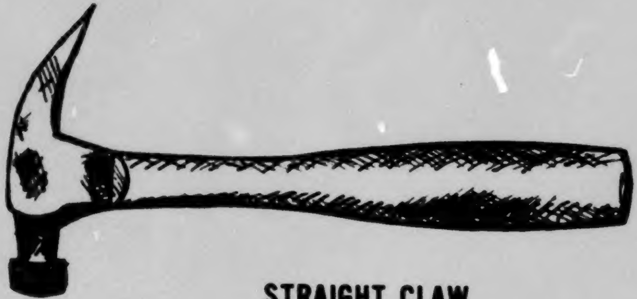


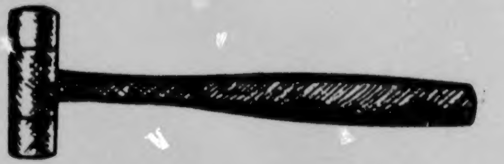
BOX END

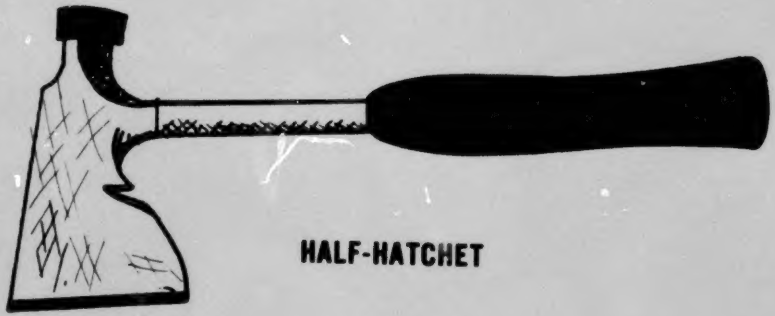
TYPES OF WRENCHES

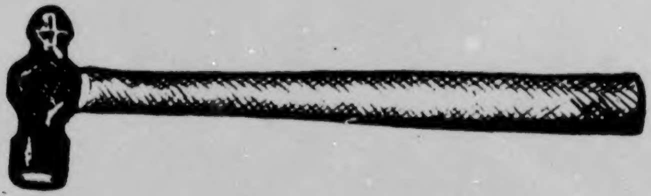

CURVED CLAW


SLEDGE


STRAIGHT CLAW


SOFT FACED


HALF-HATCHET


BALL PEEN

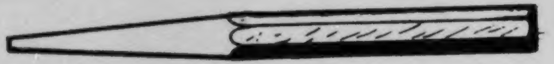
TM-19

195

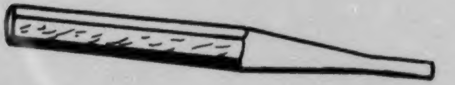
TYPES OF HAMMERS

196

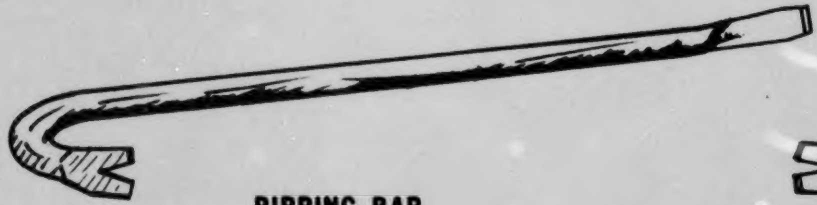
V-55



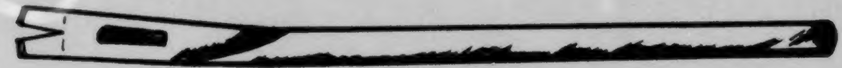
STRAIGHT PUNCH



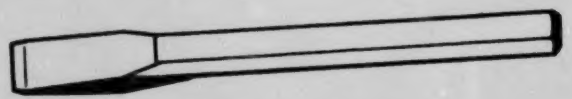
PIN PUNCH



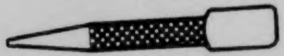
RIPPING BAR



RIP CHISEL



COLD CHISEL



NAIL SET

TYPES OF PRYING AND PUNCHING TOOLS

UNIT V

HAND TOOLS

ASSIGNMENT SHEET #1--SELECT THE CORRECT TOOL FOR A JOB

Directions: From the listing and description of tools on the information sheet, decide which tool would be the most suited to do each of the jobs below. Write your choice in the blank provided. Discuss any questions you may have with your instructor.

__________________ 1. Measure the correct distance for the corner stakes for laying out a house

__________________ 2. Mark a line across a concrete slab for a new house

__________________ 3. Level the forms for a house foundation

__________________ 4. Drill a hole 1 1/2 inches in diameter for a pipe

__________________ 5. Striking a chisel when chiseling wood

__________________ 6. Driving large concrete nails

__________________ 7. Lay out a rafter for a house

__________________ 8. Trim wood to form a rabbet joint

__________________ 9. Cut a board to length

__________________ 10. Tighten screws with an "x"-shaped slot

__________________ 11. Hold many large boards together while gluing

__________________ 12. Recess finish nails in a cabinet

__________________ 13. Pull a large nail that was bent

__________________ 14. Round a piece of wood where much wood must be removed

__________________ 15. Drive stakes for concrete forms

UNIT V

HAND TOOLS

ASSIGNMENT SHEET #2--PREPARE A LIST OF TOOLS FOR A SPECIFIED JOB

Directions: From the listing and description of tools on the information sheet, select the tools you feel it would take to complete each job listed below. List only the hand tools required.

1. Cutting a 36" shelf for a closet and installing it

   a.

   b.

   c.

   d.

   e.

2. Installing a door hinge where it must be flush mounted

   a.

   b.

   c.

   d.

   e.

   f.

   g.

3. Cutting a hole in an inner wall of a house so that an electrical panel may be installed

   a.

   b.

   c.

   d.

UNIT V

HAND TOOLS

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. Steel tape
2. Chalk line
3. Line level
4. Expansion bit
5. Soft-faced hammer
6. Ball peen hammer
7. Framing square
8. Rabbet plane
9. Crosscut saw
10. Phillips screwdriver
11. Bar clamps
12. Nail set
13. Ripping bar
14. Wood rasp
15. Sledge hammers

Assignment Sheet #2

1. a. Folding rule
   b. Try square
   c. Crosscut saw
   d. Hammer
   e. Pencil

2. a. Folding rule
   b. Twist drill
   c. Standard screwdriver
   d. Wood chisel
   e. Hand drill
   f. Pencil
   g. Soft-faced hammer
3. a. Auger bit
   b. Brace
   c. Keyhole saw
   d. Pencil

UNIT V

HAND TOOLS

JOB SHEET #1--REPLACE A WOOD HAMMER HANDLE

I. Tools and materials required

   A. Soft-faced hammer

   B. Rasp

   C. New hammer handle

   D. Wedge (wooden or metal)

   E. Hammer with broken handle

   F. Punch

   G. Ball peen hammer

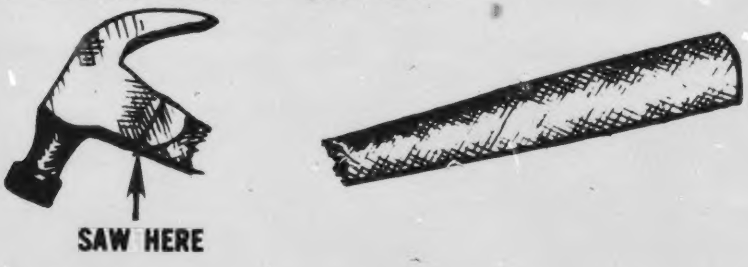
   H. Utility vise

   I. Crosscut saw

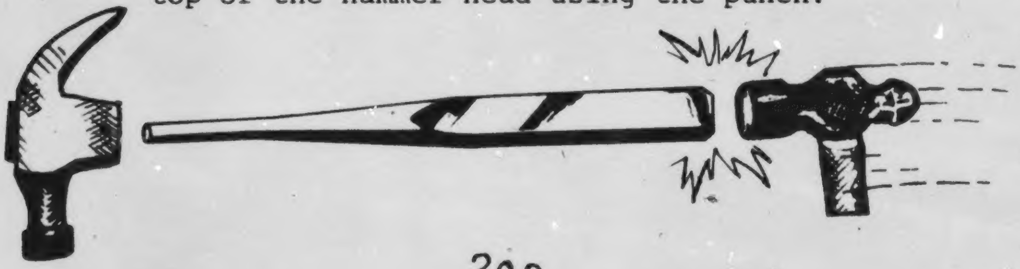
II. Procedure

   A. Place the hammer with the broken handle into the vise.

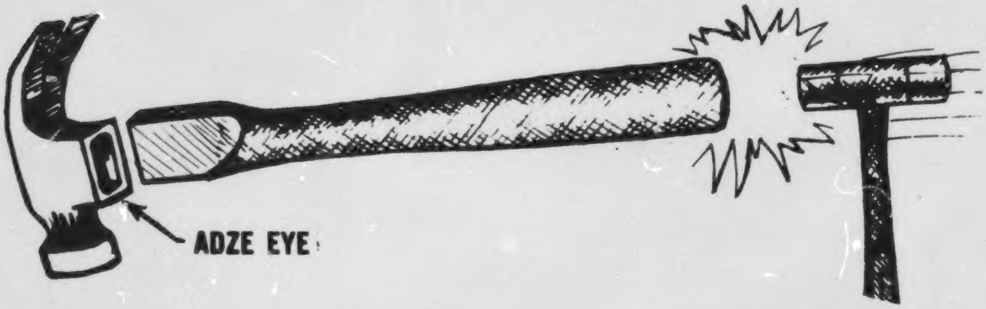
   B. Saw off the broken portion of the handle as close to the hammer head as possible.



   C. Punch the remaining portion of the handle out the top of the hammer head using the punch.



D. Place the new hammer handle against the adze eye and mark the excess wood to be removed by striking the end of the handle with the soft-faced hammer.

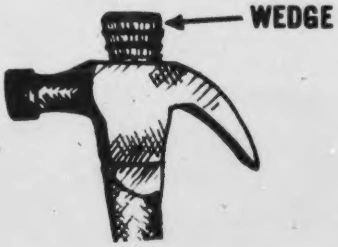


E. Remove the excess wood and shape the handle to fit the head using the rasp.

F. Using the soft-faced hammer, tap the handle into the hammer head until it fits snuggly.

G. Saw off any excess handle extending from the top of the hammer head.

H. Drive the wedge into the handle at the top of the hammer head.



I. Clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #2--GRIND A STANDARD SCREWDRIVER

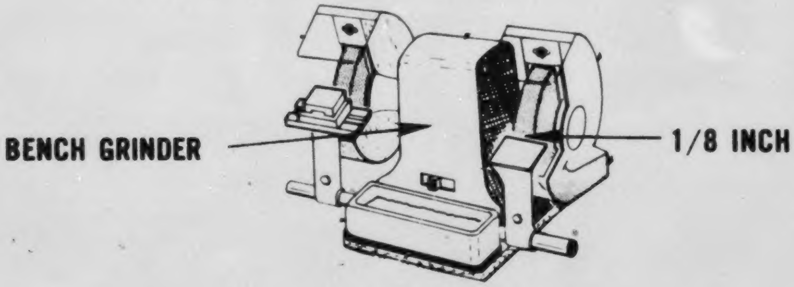
I. Tools and materials

- A. Flat tip screwdriver (in need of repair)
- B. Bench grinder
- C. Water tray
- D. Safety glasses

II. Procedure

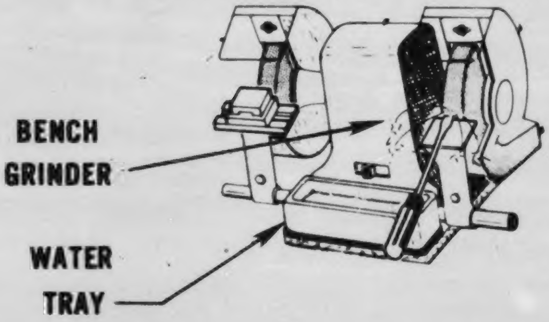
- A. Put on safety glasses.
- B. Adjust the clearance of the tool rest.

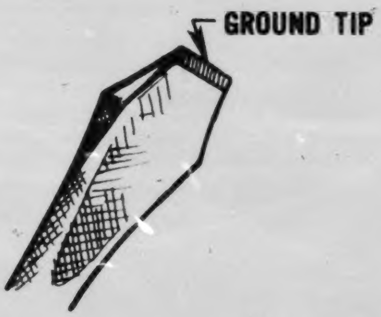
  (NOTE: Proper clearance is approximately 1/8 inch from the grinding wheel.)


BENCH GRINDER
1/8 INCH

- C. Turn on grinder.
- D. Grind the end of the tip of the blade flat.

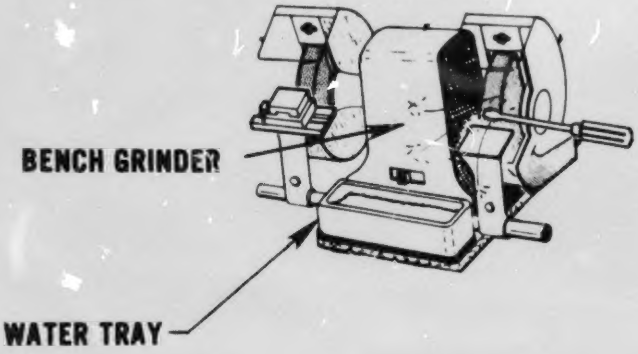
  (CAUTION: Do not grind on the side of the wheel.)


BENCH GRINDER
WATER TRAY



E. Grind sides of screwdriver blade so it will correctly fit the screw slot.

(NOTE: Cool tip often in water to prevent softening the tip.)


BENCH GRINDER
WATER TRAY

F. Turn off grinder and clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #3--GRIND A MUSHROOMED CHISEL OR PUNCH

I. Tools and materials

   A. Mushroomed chisel or punch

   B. Bench grinder

   C. Water tray

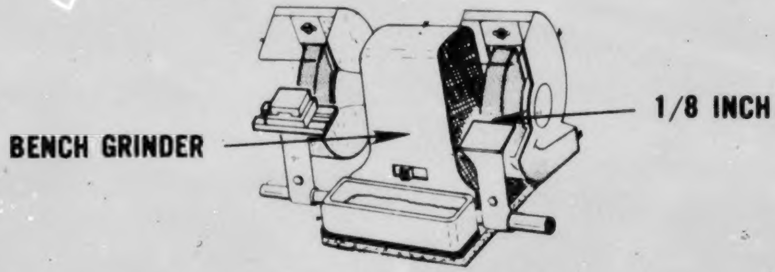
   D. Safety glasses

II. Procedure

   A. Put on safety glasses.

   B. Adjust the clearance of the tool rest.

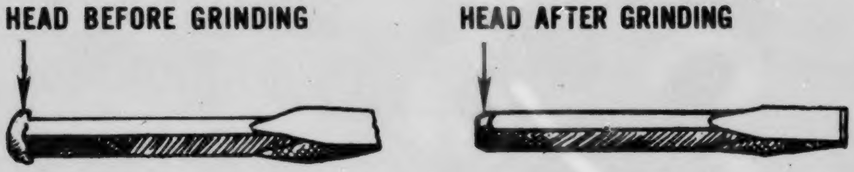
   (NOTE: Proper clearance is approximately 1/8 inch from the grinding wheel.)


BENCH GRINDER
1/8 INCH

   C. Turn on grinder.

   D. Grind a 45° bevel on the head.

   (CAUTION: Do not grind on the side of the wheel.)


HEAD BEFORE GRINDING
HEAD AFTER GRINDING

   E. Turn off grinder and clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #4--SHARPEN A COLD CHISEL

I. Tools and materials

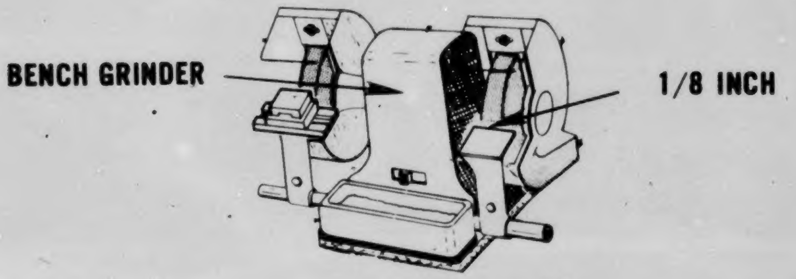
- A. Chisel with dull edge
- B. Bench grinder
- C. Water tray
- D. Safety glasses

II. Procedure

A. Put on safety glasses.

B. Adjust clearance of tool rest.

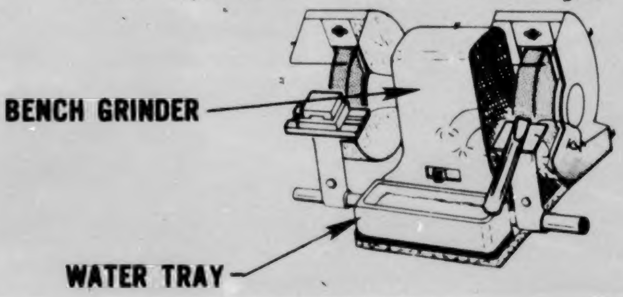
(NOTE: Proper clearance is approximately 1/8 inch from the grinding wheel.)



C. Turn on grinder.

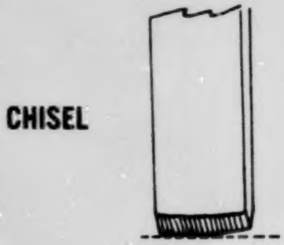
D. Hold the chisel with a firm grip and apply the chisel with very little pressure against the wheel.

(NOTE: Light pressure prevents the cutting edge of the chisel from over heating.)

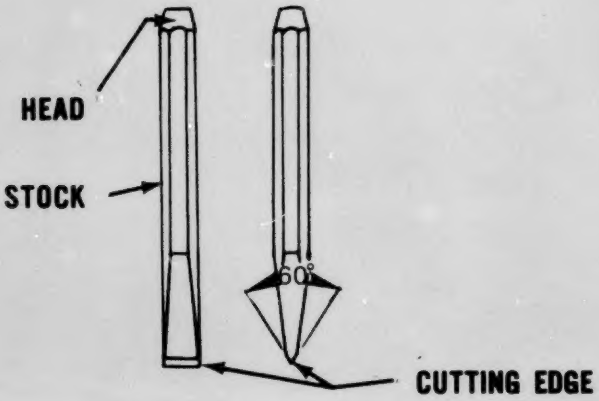


E. Dip the chisel in the water frequently to cool.

F. Grind the cutting edge at a slight curve.



G. Grind each side at the 60° angle until the cutting edge is sharp.


HEAD
STOCK
60°
CUTTING EDGE

H. Turn off grinder and clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #5--SHARPEN A TWIST DRILL BIT

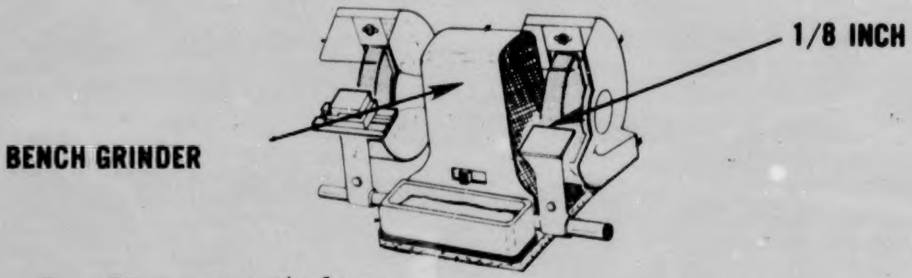
I. Tools and materials

- A. Dull drill bit
- B. Bench grinder
- C. Water tray
- D. Safety glasses
- E. Drill bit gauge or protractor
- F. Oilstone

II. Procedure

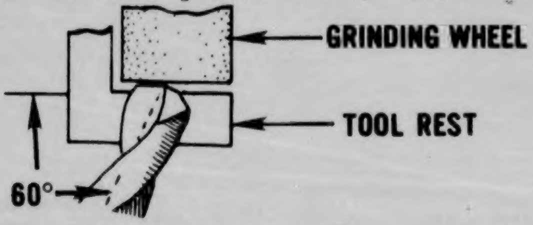
- A. Put on safety glasses.
- B. Adjust tool rest to proper clearance.

  (NOTE: Proper clearance is approximately 1/8 inch from the wheel.)


1/8 INCH
BENCH GRINDER

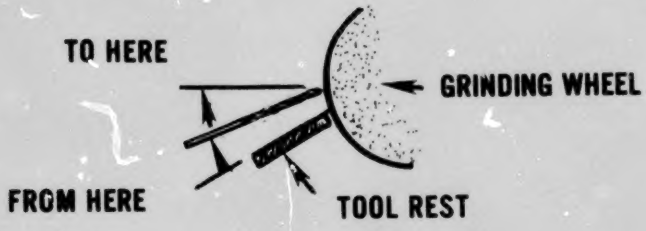
- C. Turn on grinder.
- D. Place drill bit on tool rest at an angle of about 60°.

  (CAUTION: Do not grind on the side of the wheel.)


GRINDING WHEEL
TOOL REST
60°

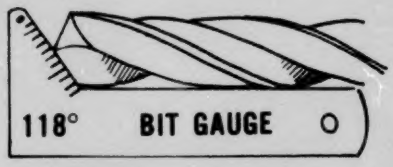
E. Grind one lip of the drill bit by rolling the bit to the right and up.

(NOTE) This rolling of the drill bit provides back clearance.)


TO HERE
GRINDING WHEEL
FROM HERE
TOOL REST

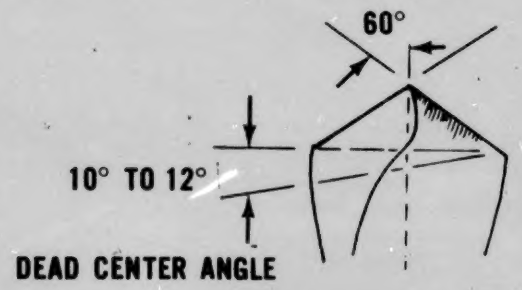
F. Dip the drill bit in water to prevent overheating.

G. Check the correct angle with a drill bit guage.


118°
BIT GAUGE

H. Grind and check the other drill bit lip.

(NOTE: The point of the drill should be centered on the bit when grinding is finished.)


60°
10° TO 12°
DEAD CENTER ANGLE

I. Turn off grinder.

J. Hone cutting edges of the drill bit to remove burrs.

K. Recheck all cutting angles.

L. Clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #6--SHARPEN AN AUGER BIT

I. Tools and materials

  A. Dull auger bit

  B. Safety glasses

  C. Three-cornered file

  D. Utility vise

II. Procedure

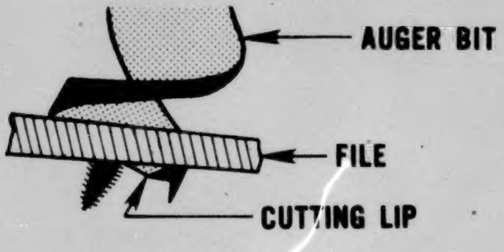
  A. Put on safety glasses.

  B. Hold the auger bit with the left hand.

  C. Rest the feed screw of the auger bit on the table or a block of wood.

  D. File one cutting lip up through the throat.

  (NOTE: Do not file the under side.)

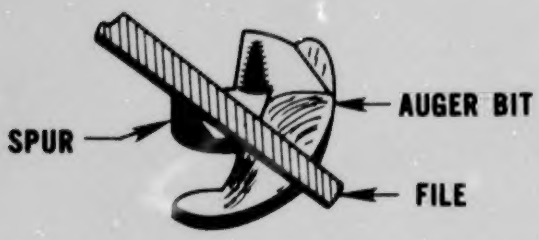


  E. File the other cutting lip in the same manner.

  F. Place the shank of the auger bit in a vise, with the feed screw pointing up.

  G. File the inside of one spur.

  (NOTE: The spurs should be equal in length when sharpened.)


AUGER BIT
SPUR
FILE

H. File the inside of the other spur.

I. Clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #7--HONE A WOOD CHISEL

I. Tools and and materials

A. Dull wood chisel

B. Oilstone

C. Safety glasses

D. Can of oil

II. Procedure

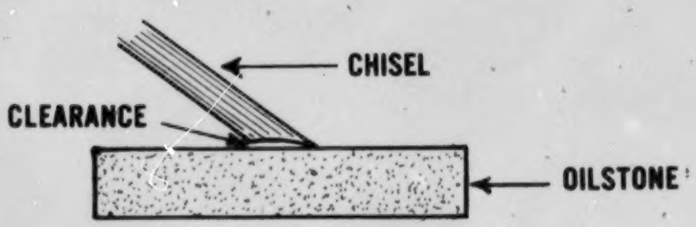
A. Put on safety glasses.

B. Place oilstone on a flat surface.

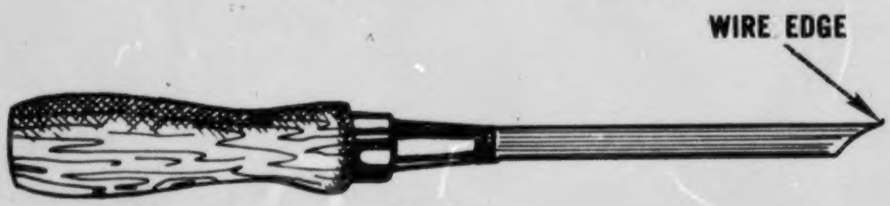
C. Put a few drops of oil on the surface of the oilstone.

D. Place the beveled flat of the chisel on the surface of the oilstone.

E. Raise the back edge of the chisel so that just the cutting edge is in contact with the oilstone.



F. Move the chisel back and forth until a fine wire edge can be felt on the top of the cutting edge.



G. Place the back of the chisel flat on the oilstone and stroke it lightly several times.

H. Turn the chisel over and stroke the beveled side lightly again.

I. Repeat this operation until the wire edge is gone.

J. Clean up work area.

UNIT V

HAND TOOLS

JOB SHEET #8--GRIND A PLANE IRON

I. Tools and and materials

A. Dull plane iron

B. Bench grinder

C. Water tray

D. Safety glasses

E. Plane iron grinding attachment if available

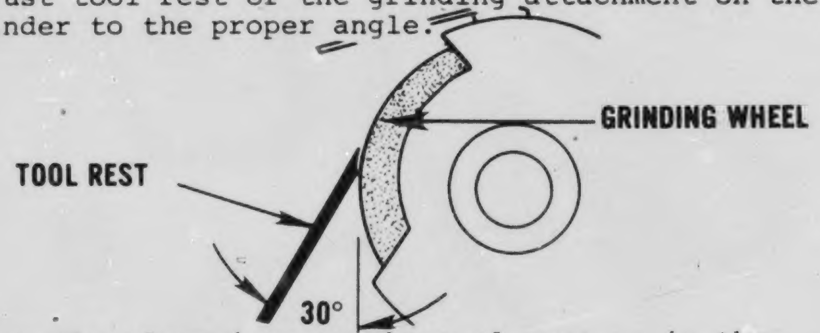
F. Oilstone

G. Can of oil

II. Procedure

A. Put on safety glasses.

B. Adjust tool rest or the grinding attachment on the grinder to the proper angle.

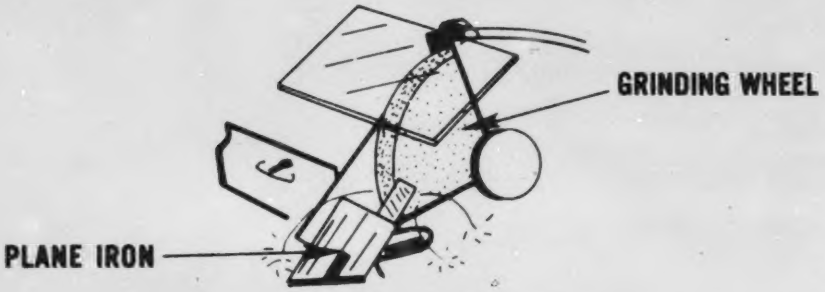


C. Place the plane iron on the tool rest or in the attachment.

(CAUTION: Do not let the iron touch the grinding wheel.)

D. Turn on the grinder.

E. Move the plane iron into the grinding wheel where it is lightly touching.



F. Move the plane iron back and forth until all nicks are removed.

(NOTE: The plane iron may have to be moved into the grinding wheel several times.)

G. Remove the plane iron.

H. Turn off the grinder.

I. Hone the plane iron.

(NOTE: Follow the same procedure as in Job Sheet #7--Hone a Wood Chisel.)

J. Clean up work area.

UNIT V

HAND TOOLS

UNIT TEST--PART 1

1. Match the terms on the right to the correct definition.

_____________ a. A straight strip of wood or metal used with a level or for marking straight lines

_____________ b. At a 90° angle to a surface

_____________ c. Trimming and fitting wood with a sharp-edged tool

_____________ d. Forming a hole with a drill

_____________ e. Forming a hole larger than 1/4 inch with an expansion bit

_____________ f. Removing the wire edge from sharpened blades with an oilstone

_____________ g. The ground or angular surface on a chisel or plane iron

_____________ h. The staggering of teeth on a saw so that the body of the saw does not bind

_____________ i. The width of the slot the saw leaves in the wood

_____________ j. An outward rounded or bell-faced surface

_____________ k. Small pieces of metal driven into the head of a hammer to keep it in place

_____________ l. A straight up and down or vertical position

1. Honing
2. Drilling
3. Straightedge
4. Bevel
5. Set
6. Perpendicular
7. Boring
8. Planing
9. Kerf
10. Plumb
11. Convex
12. Wedges

2. Select the correct methods of using and caring for hand tools by answering true of false to each of the following.

_____ a. Use tools correctly.

_____ b. Keep tools working properly.

_____ c. Hammer heads cannot come off of wooden handles so they do not require checking.

_____ d. When going to a job, stuff your pockets with tools so you will only have to make one trip.

_____ e. Tools should not be dropped.

_____ f. Slightly dull tools are safer than sharp ones.

_____ g. Tools should remain dirty and unoiled.

_____ h. Return tools to the storage area after use.

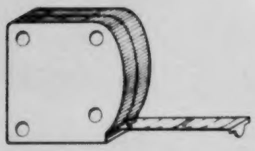
UNIT V

HAND TOOLS

UNIT TEST--PART 2

3. Identify the types of rules by writing the correct name in the blank provided.

Folding wooden rule	24-inch rule
Steel tape	12-inch rule
Yardstick	



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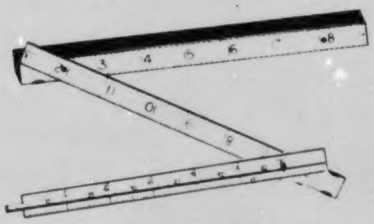

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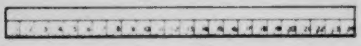

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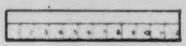
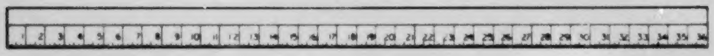


_____________________ e.



_____________________ c.

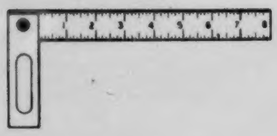
4. Identify the types of squares by writing the correct name in the blank provided.

Framing

Try

Combination

Swanson Speed



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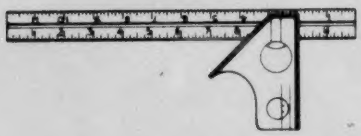

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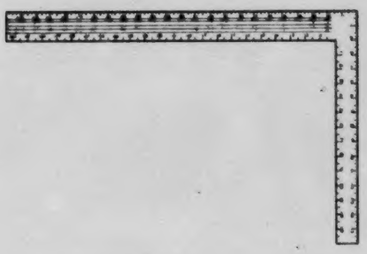

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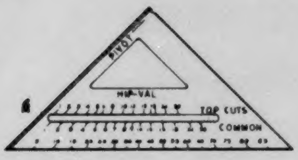
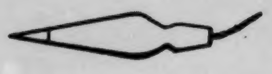

PIVOT
HIP-VAL
TOP CUTS
COMMON

__________________ d.

5. Identify the layout tools by writing the correct name in the blank provided.

T-bevel	Scratch awl
Dividers	Chalk line
Marking gauge	Plumb bob
Butt gauge	



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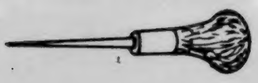

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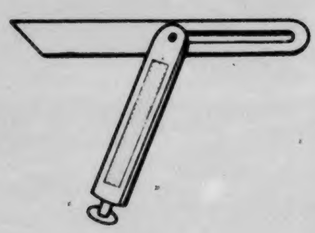

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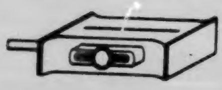

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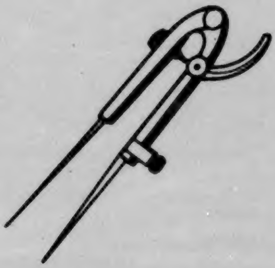

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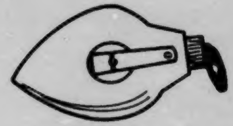

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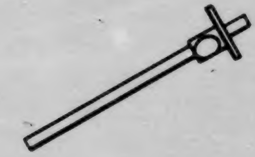


________________ g.

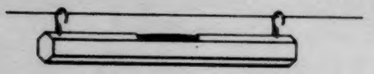
6. Identify the types of levels by writing the correct name in the blank provided.

Carpenter's

Line

Torpedo

Level-transit



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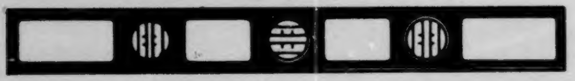

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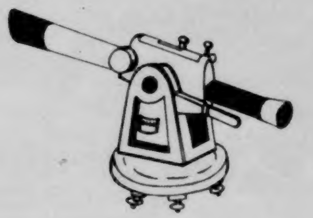

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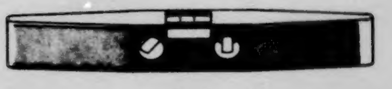


__________________ d.

UNIT V

HAND TOOLS

UNIT TEST--PART 3

7. Identify the types of handsaws by writing the correct name in the blank provided.

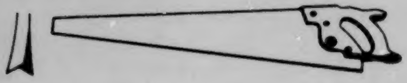
Crosscut

Rip

Backsaw

Keyhole

Hacksaw



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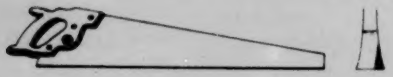

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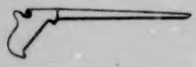

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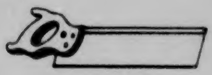
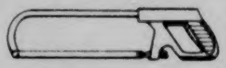


_____________________ d.



_____________________ e.

8. Identify the types of planes by writing the correct name in the blank provided.

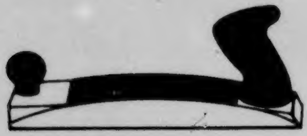
Jack

Rabbet

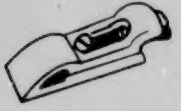
Block

Surform

Cabinetmaker's



_______________ a.



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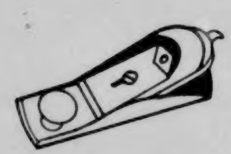
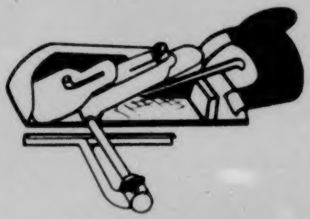


_______________ c.



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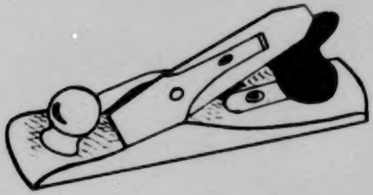


_______________ e.

9. Identify the types of cutting and scraping tools by writing the correct name in the blank provided.

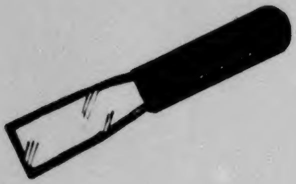
Chisel

Utility knife

Putty knife

Scraper

Cornering tool



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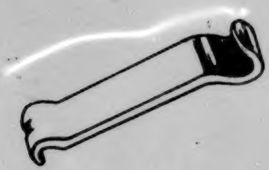

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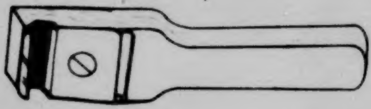

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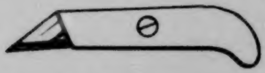

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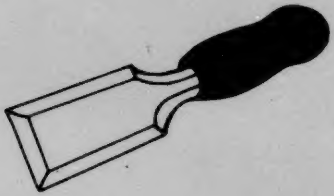
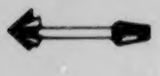


______ e.

10. Identify the types of drilling and boring tools by writing the correct name in the blank provided.

Brace	Expansive bit
Hand drill	Twist drill
Push drill	Countersink
Auger bit	



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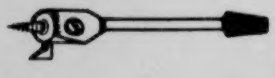

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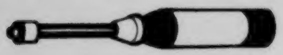

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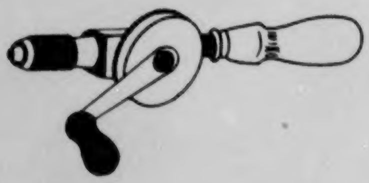

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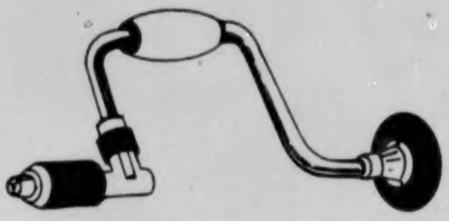

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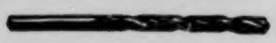

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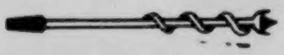


______________________ g.

11. Identify the types of files by writing the correct name in the blank provided.

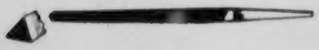
Wood rasp

Half-rounded

Three-cornered

Round

Flat



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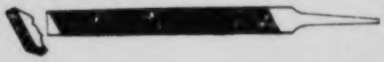

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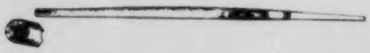

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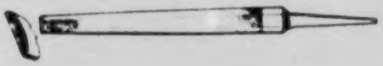

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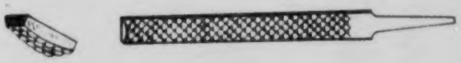


______________________ e.

UNIT V

HAND TOOLS

UNIT TEST--PART 4

12. Identify the types of pliers by writing the correct name in the blank provided.

Slip joint

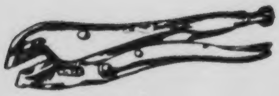
Vise grip

Needle nose

Channellock

Side cutters

Diagonals



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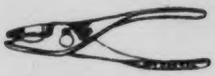

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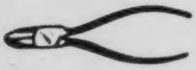

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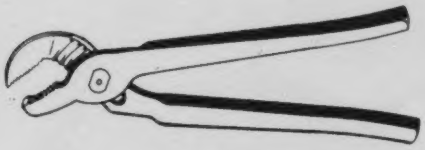

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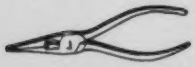

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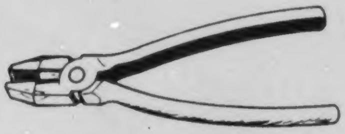

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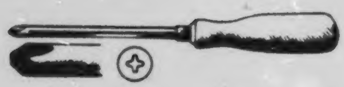
13. Identify the types of screwdrivers by writing the correct name in the blank provided.

Standard	Phillips
Cabinet	Offset



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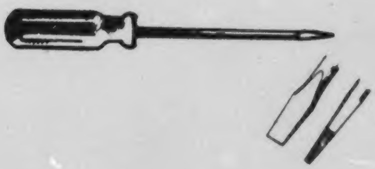

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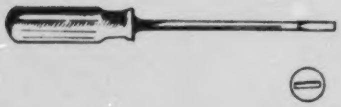

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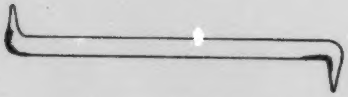
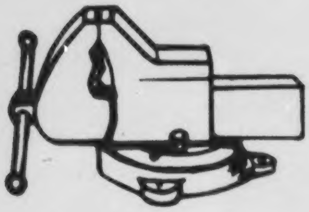


_________________ d.

14. Identify the types of clamps and vises by writing the correct name in the blank provided.

Handscrew clamp	Wood vise
C-clamp	Utility vise
Bar clamp	



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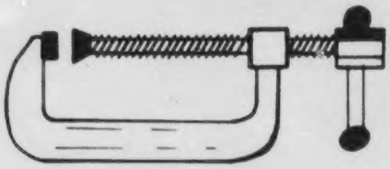

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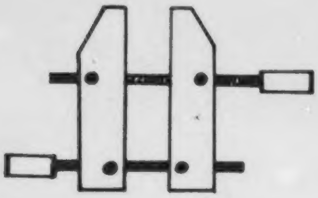

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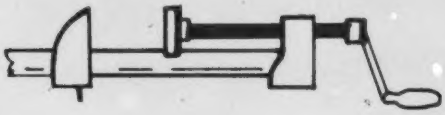

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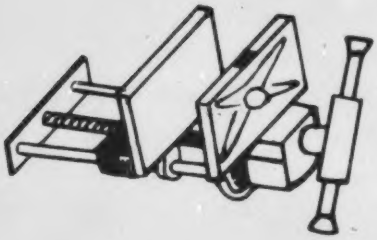
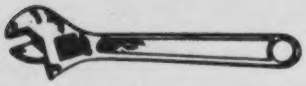


________________ c.

15. Identify the types of wrenches by writing the correct name in the blank provided.

Adjustable
Box end
Open end
Combination



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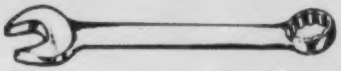

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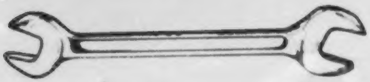

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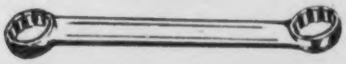


________________ d.

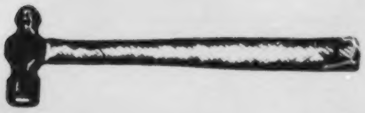
UNIT V

HAND TOOLS

UNIT TEST--PART 5

16. Identify the types of hammers by writing the correct name in the blank provided.

Claw	Sledge
Soft face	Half hatchet
Ball peen	



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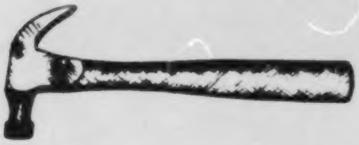

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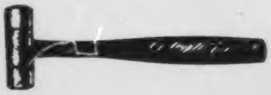

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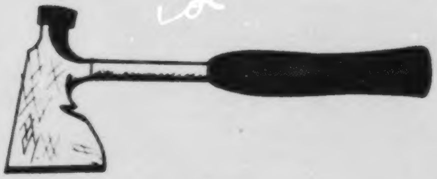

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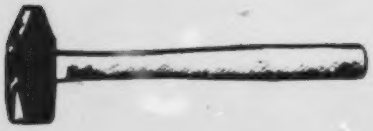


_______________ c.

17. Identify the types of prying and punching tools by writing the correct name in the blank provided.

Straight punch

Pin punch

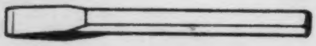
Nail set

Cold chisel

Ripping bar

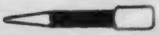
Rip chisel

________________ a.



________________ b.

________________ c.



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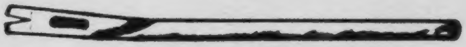

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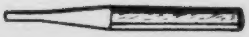


________________ f.

18. Select the correct tool for a job.

19. Prepare a list of tools for a specified job.

20. Demonstrate the ability to:

   a. Replace a wood hammer handle

   b. Grind a standard screwdriver

   c. Grind a mushroomed chisel or punch

   d. Sharpen a cold chisel

e. Sharpen a twist drill bit

f. Sharpen an auger bit

g. Hone a wood chisel

h. Grind a plane iron

(NOTE: If the activities on test questions 18 through 20 have not been accomplished prior to the test, ask the instructor when they should be completed.)

UNIT V

HAND TOOLS

ANSWERS TO TEST

PART 1

1. a. Straightedge
   b. Perpendicular
   c. Planing
   d. Drilling
   e. Boring
   f. Honing
   g. Bevel
   h. Set
   i. Kerf
   j. Convex
   k. Wedges
   l. Plumb

2. a. True
   b. True
   c. False
   d. False
   e. True
   f. False
   g. False
   h. True

PART 2

3. a. Steel tape
   b. 24-inch rule
   c. Yardstick
   d. Folding wood rule
   e. 12-inch rule

4. a. Try
   b. Combination
   c. Framing
   d. Swanson speed

5. a. Plumb bob
   b. Scratch awl
   c. T-bevel
   d. Butt gauge
   e. Dividers
   f. Chalk line
   g. Marking gauge

6. a. Line
   b. Carpenter's
   c. Level-transit
   d. Torpedo

PART 3

7. a. Crosscut
   b. Rip
   c. Keyhole
   d. Backsaw
   e. Hacksaw

8. a. Surform
   b. Cabinetmaker's
   c. Block
   d. Rabbet
   e. Jack

9. a. Putty knife
   b. Cornering tool
   c. Scraper
   d. Utility knife
   e. Chisel

10. a. Countersink
    b. Expansive bit
    c. Push drill
    d. Hand drill
    e. Brace
    f. Twist drill
    g. Auger bit

11. a. Three-cornered
    b. Flat
    c. Round
    d. Half-round
    e. Wood rasp

PART 4

12. a. Vise grip
    b. Slip joint
    c. Diagonals
    d. Channellock
    e. Needle nose
    f. Side cutters

13. a. Phillips
    b. Standard
    c. Cabinet
    d. Offset

14. a. Utility vise
    b. Hand-screw clamp
    c. Wood vise
    d. C-clamp
    e. Bar clamp

15. a. Adjustable
    b. Open-end
    c. Combination
    d. Box-end

PART 5

16. a. Ball peen
    b. Soft-face
    c. Sledge
    d. Claw
    e. Half hatchet

17. a. Ripping bar
    b. Cold chisel
    c. Straight punch
    d. Nail set
    e. Rip chisel
    f. Pin punch

18. through 20. Evaluated to the satisfaction of the instructor.

UNIT VI

MEASUREMENT

UNIT OBJECTIVE

After completing this unit, the student will be able to match terms and definitions associated with measurement, identify tools and graduations of tools used in measuring, and read and measure with a rule. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms and definitions associated with measurement.
2. Identify each of the tools used in measuring.
3. Identify the five graduations found on a rule marked in sixteenths.
4. Read a rule graduated in eighths of an inch.
5. Read a rule graduated in sixteenths of an inch.
6. Read a rule to a point of measurement.
7. Read the whole numbers of a rule.
8. Read fractions of an inch on a six-foot folding rule.
9. Measure objects using a rule.
10. Draw lines and objects to length using a rule.
11. Reduce measurements to the smallest form.

UNIT VI

MEASUREMENT

SUGGESTED ACTIVITIES

I. Instructor

   A. Provide students with objective sheet.

   B. Provide students with information and assignment sheets.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Show and discuss transparency.

   F. Discuss information and assignment sheets.

   G. Have students complete assignment sheets.

   H. Give and evaluate test.

II. Students

   A. Read objective sheet.

   B. Study information sheet and ask questions.

   C. Complete assignment sheets.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheet

   C. Transparency masters

      1. VI-TM-1--Types of Rules

      2. VI-TM-2--Types of Squares

      3. VI-TM-3--Reading Whole Numbers on a Rule

4. VI-TM-4--Reading Eighths on a Rule
5. VI-TM-5--Reading Sixteenths on a Rule

D. Assignment sheets

1. Assignment Sheet #1--Reading a Rule in Eighths
2. Assignment Sheet #2--Reading a Rule in Sixteenths
3. Assignment Sheet #3--Reading A Rule to the Point of Measurement
4. Assignment Sheet #4--Reading Whole Numbers on a Six-Foot Folding Rule
5. Assignment Sheet #5--Reading Fractions on a Six-Foot Folding Rule
6. Assignment Sheet #6--Measuring Objects
7. Assignment Sheet #7--Drawing Lines and Objects
8. Assignment Sheet #8--Reducing Measurements

E. Answers to assignment sheets

F. Unit test

G. Answers to test

II. References: Books

A. Durban, Walter E. Fundamentals of Carpentry Tools: Materials and Practices, Volume 1. Chicago: American Technical Society, 1967.

B. Educational Department. Stanley Tool Guide. New Britain: Division of the Stanley Works.

C. McDonald, Leo P. The Use of Hand Woodworking Tools. Albany: Delmar Publishers, Inc., 1962.

D. Wagner, Willis H. Modern Carpentry. Homewood, Illinois: Goodheart-Wilcox Company, Inc. 1976.

UNIT VI

MEASUREMENT

INFORMATION SHEET

I. Terms and definitions

   A. Whole number--Any natural number that is not broken into parts

      (Example: 1, 2, 3, 4, . . . 11, 12, 13, 14, and others)

   B. Fraction--A part of a whole number or one

      (Example: 1/16, 1/8, 1/4, 1/2)

   C. Dimension--The distance or size from one point to another point

   D. Graduation--The mark on a measuring tool indicating size or degrees

II. Types of measuring tools

   A. Rules

      1. Folding wood rule

      2. Steel tape

      3. Yardstick

      4. 24-inch rule

      5. 12-inch rule

   B. Squares

      1. Framing square

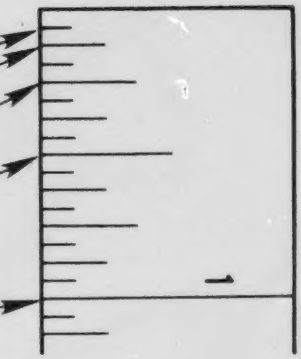
      2. Combination square

      3. Try square

III. Carpenter's rules

A. Graduations

1. Sixteenths
2. Eighths
3. Fourths
4. Halves
5. Inches



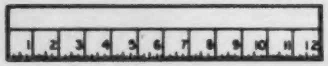
B. All rules read alike.

(NOTE: Some have been divided into smaller graduations per inch than others.)

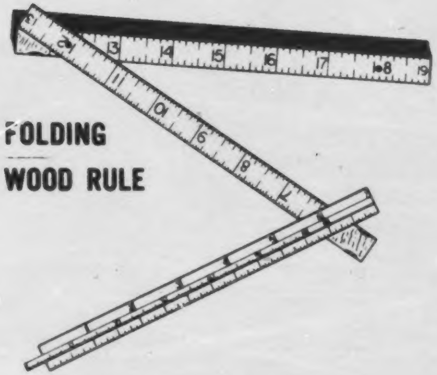
C. Carpenters' rules have also been graduated into feet.

(NOTE: There is also a mark on every 16-inch center.)

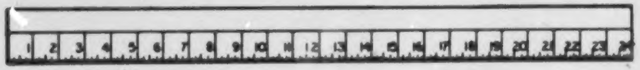
TYPES OF RULES



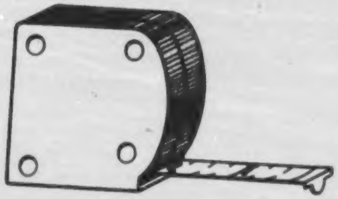
12" RULE



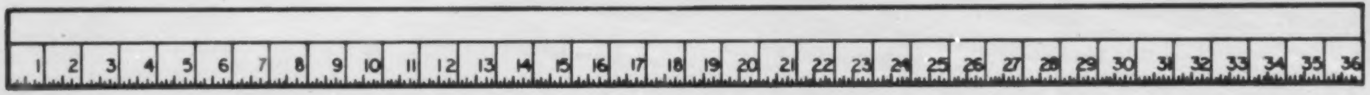
FOLDING WOOD RULE



24" RULE

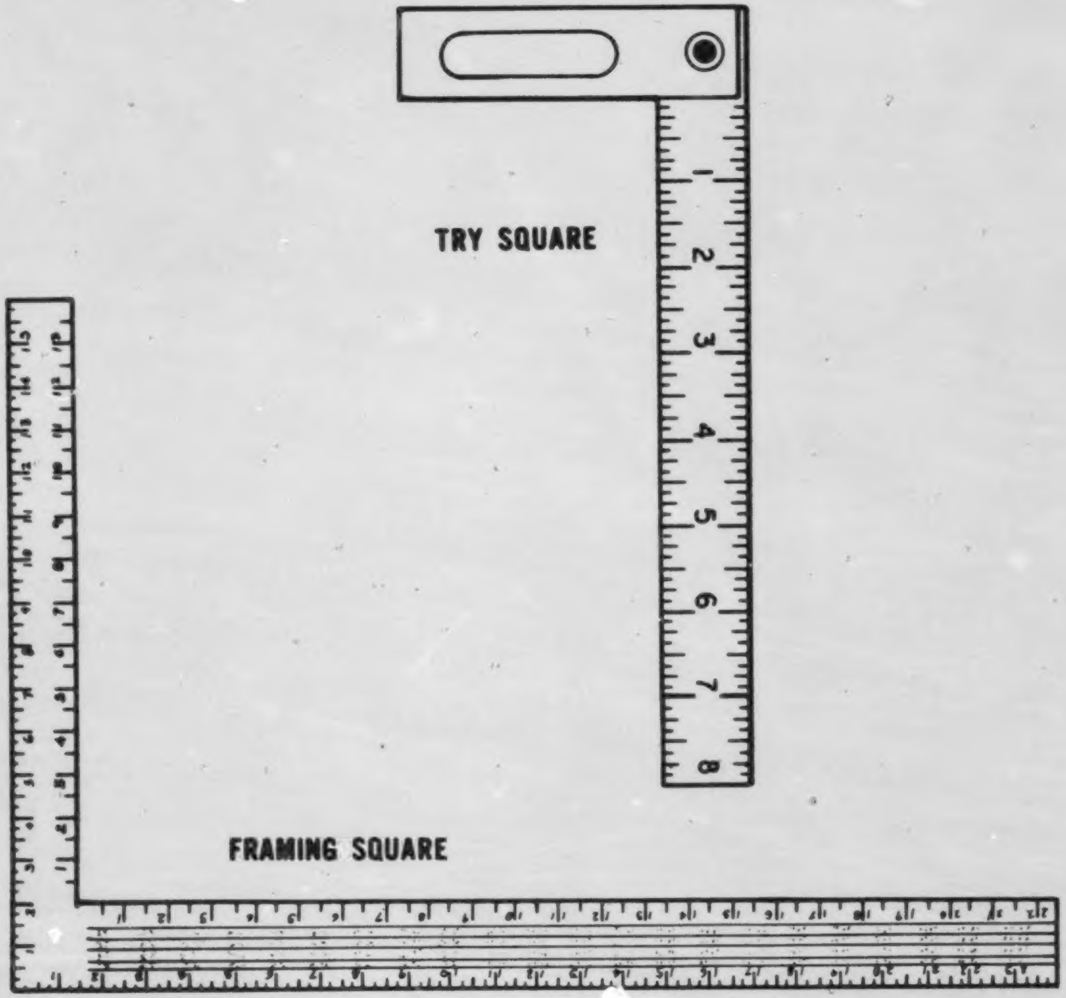


STEEL TAPE

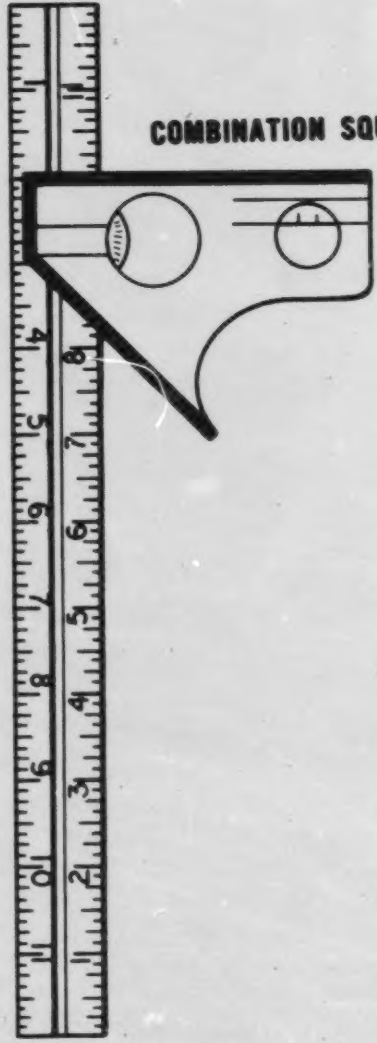


YARDSTICK

TYPES OF SQUARES



TRY SQUARE



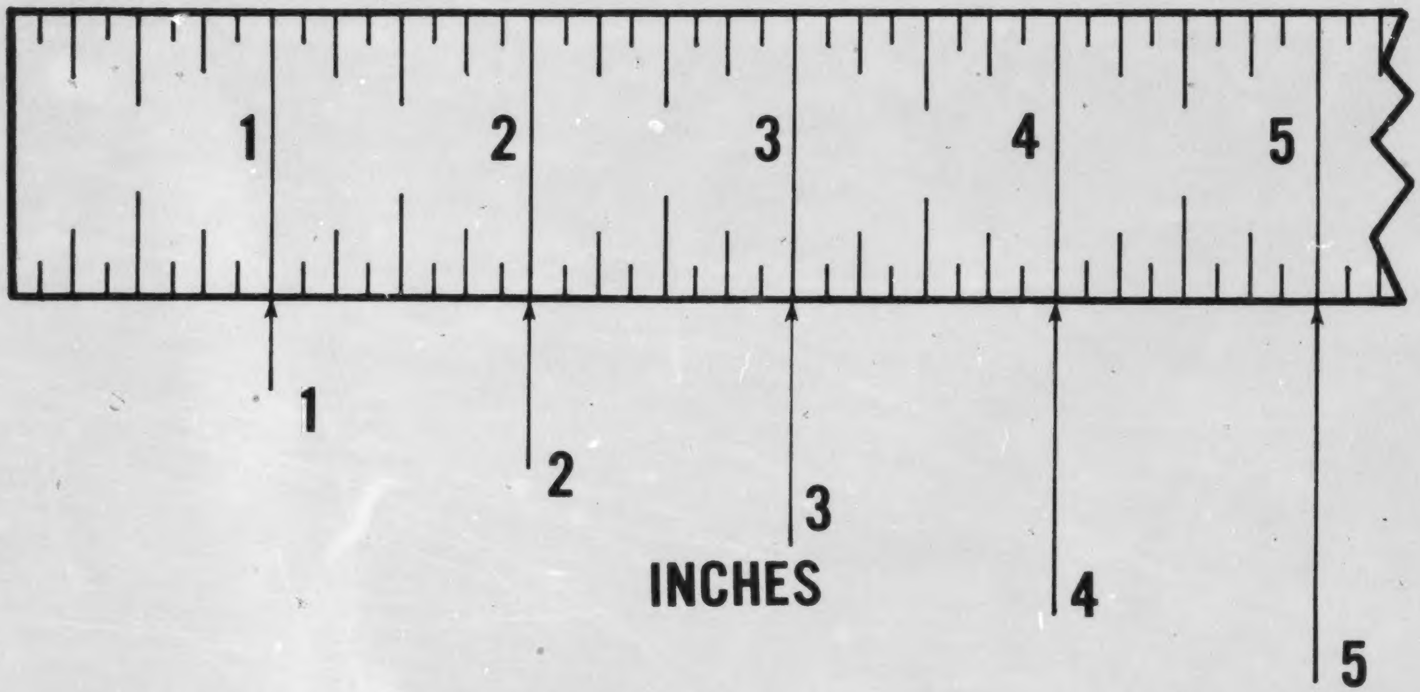
COMBINATION SQUARE

FRAMING SQUARE

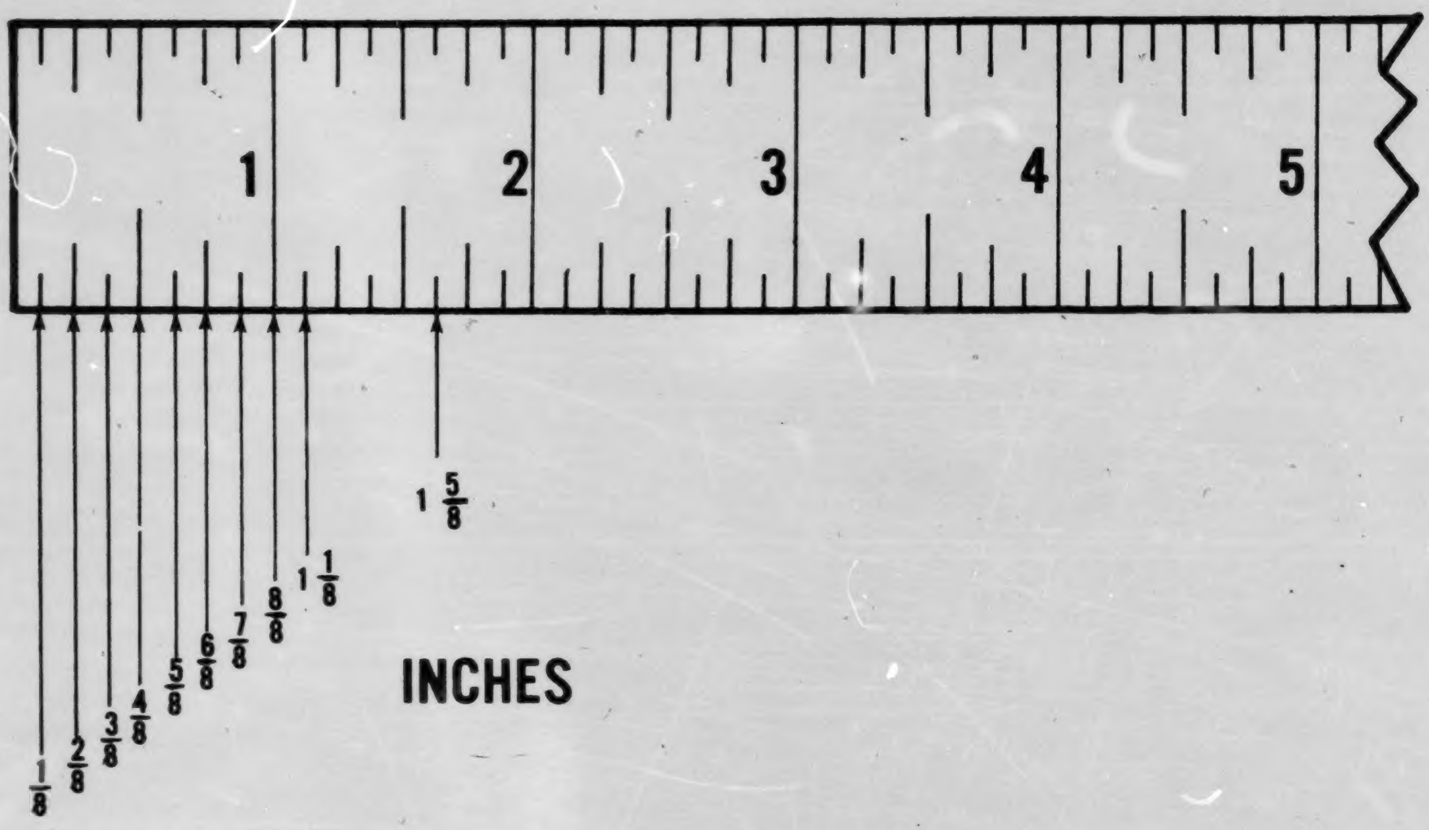
TM-2

VI-9

READING WHOLE NUMBERS ON A RULE

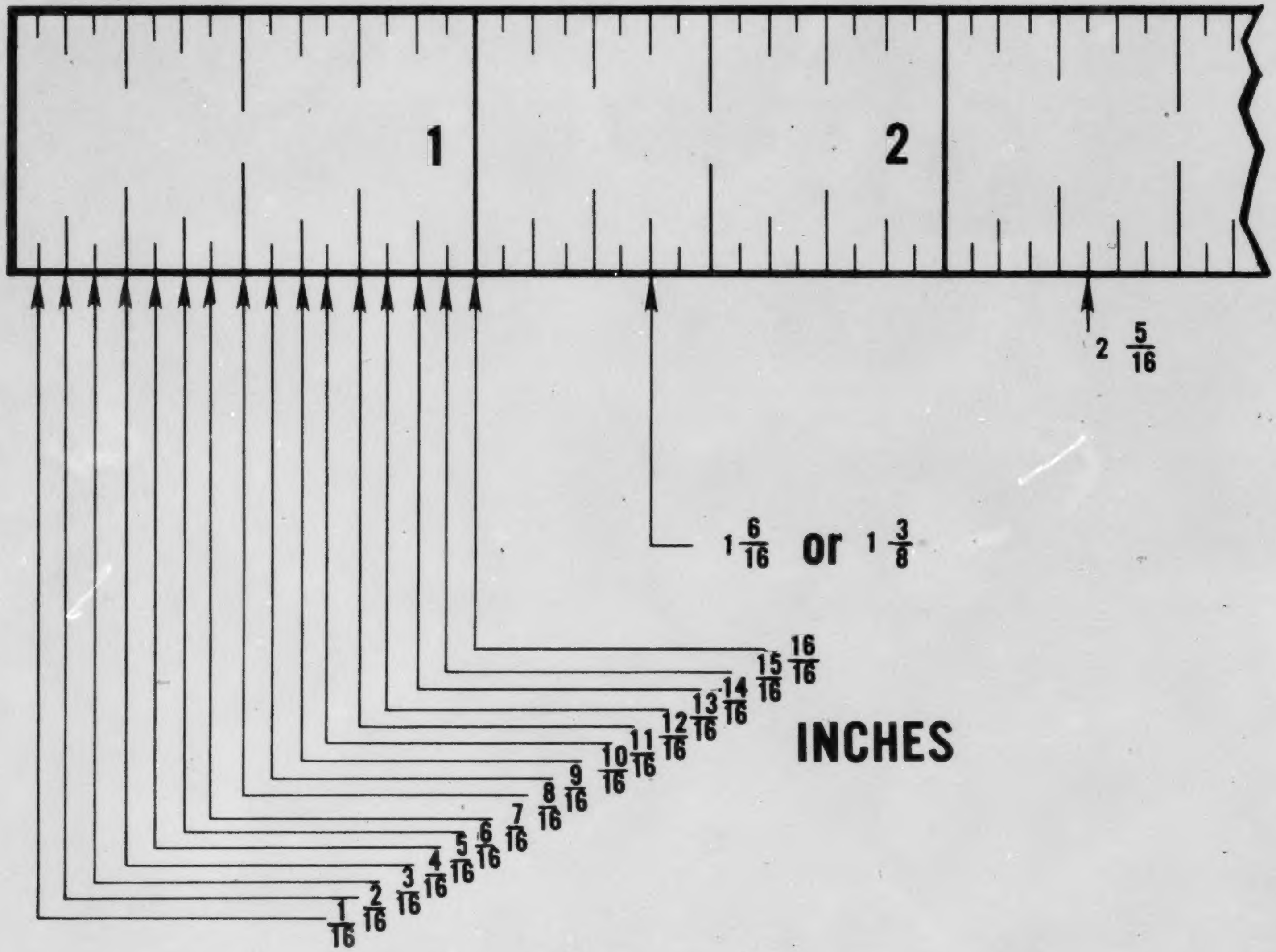

1
2
3
4
5
1
2
3
INCHES
4
5

READING EIGHTHS ON A RULE


1
2
3
4
5
1/8
2/8
3/8
4/8
5/8
6/8
7/8
8/8
1 1/8
1 5/8
INCHES

TM-4

READING SIXTEENTHS ON A RULE


1
2
2 5/16
1 6/16 or 1 3/8
1/16
2/16
3/16
4/16
5/16
6/16
7/16
8/16
9/16
10/16
11/16
12/16
13/16
14/16
15/16
16/16
INCHES

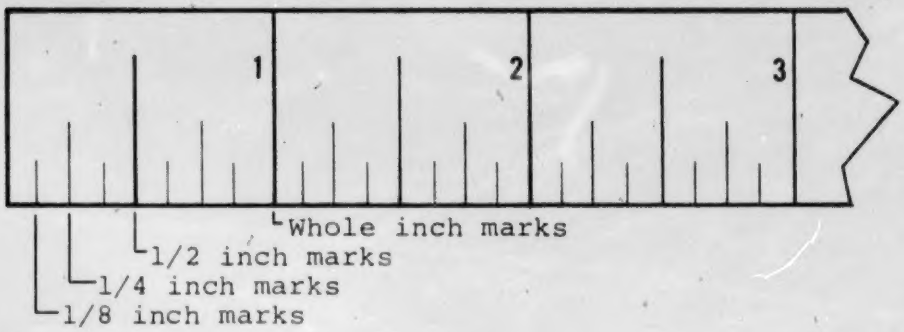
UNIT VI

MEASUREMENT

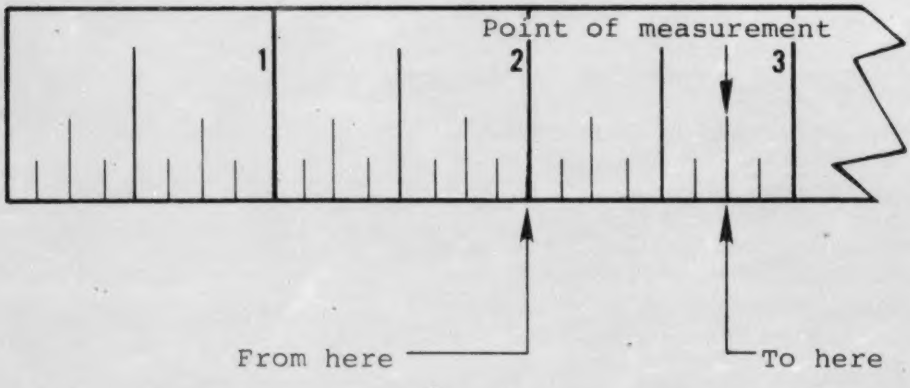
ASSIGNMENT SHEET #1--READING A RULER IN EIGHTHS

Directions: Follow the steps below to fill in the graduations of the rule on the back page.

1. Determine the size of each graduation by the length of the mark.

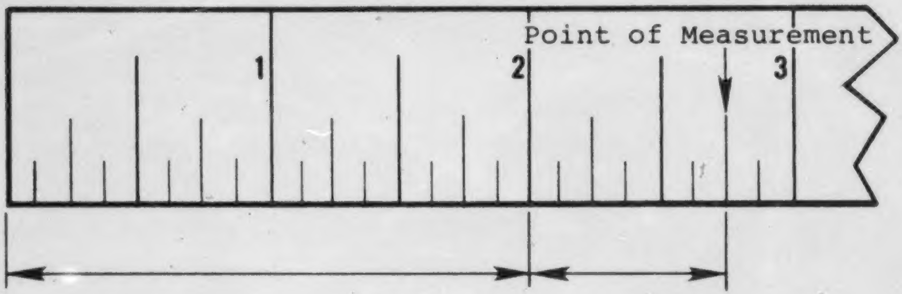

1
2
3
Whole inch marks
1/2 inch marks
1/4 inch marks
1/8 inch marks

2. Count the number of divisions from the last inch mark to the point of measurement.


Point of measurement
1
2
3
From here
To here

3. Add this fraction to the whole number of inches behind the point of measurement.

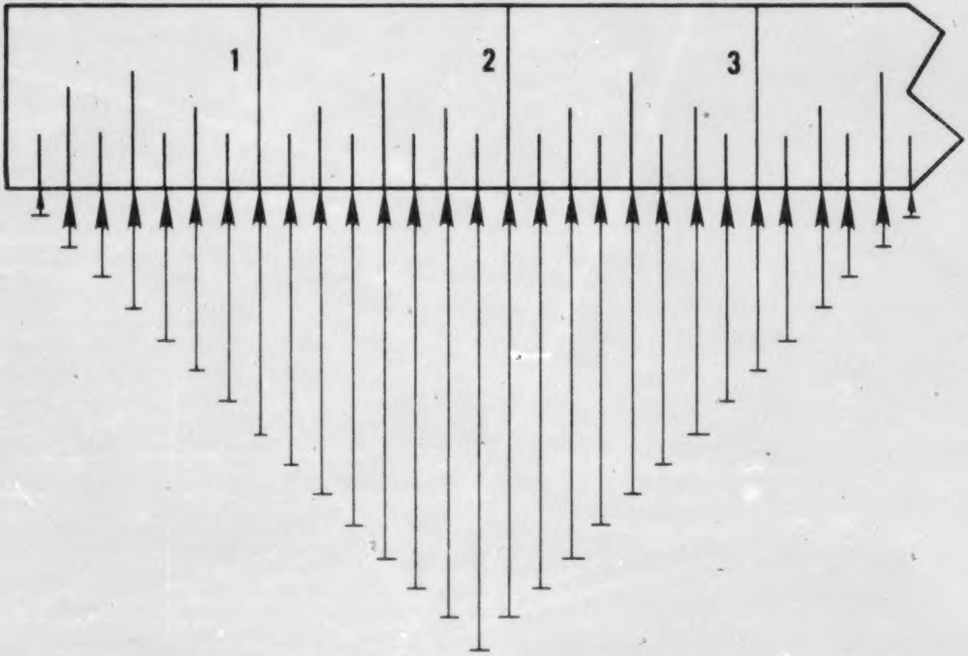
   (NOTE: If there are no whole numbers behind the point of measurement, the total will be the fraction of an inch.)


Point of Measurement
1
2
3

2" + 6/8" = 2 6/8"

4. Reduce if possible:

   2 6/8" = 2 3/4"

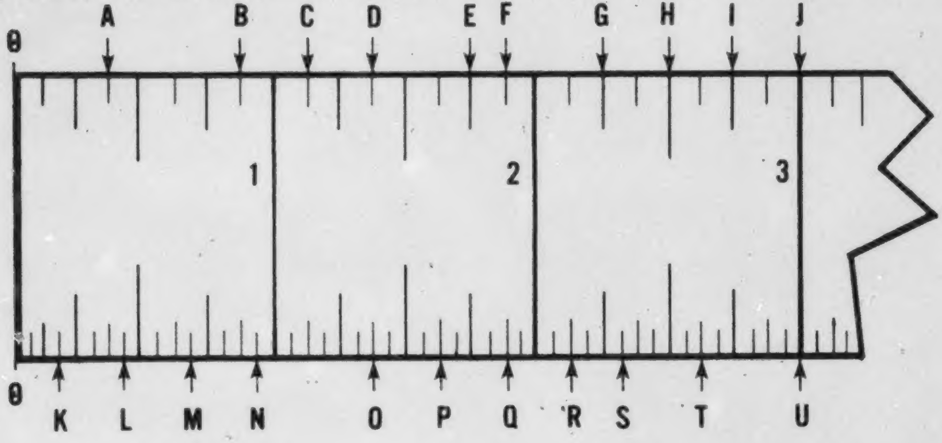


UNIT VI

MEASUREMENT

ASSIGNMENT SHEET #3--READING A RULE TO THE POINT OF MEASUREMENT

Directions: Use the drawing below to determine the distances from the left end of the rule, which is the "0" point, to the point of measurement, which will be lettered.



Fill in each of the distances below. Reduce the answer if possible. (NOTE: 0 is the zero point.)

1. 0 to A ________
2. 0 to B ________
3. 0 to C ________
4. 0 to D ________
5. 0 to E ________
6. 0 to F ________
7. 0 to G ________
8. 0 to H ________
9. 0 to I ________
10. 0 to J ________
11. 0 to K ________
12. 0 to L ________
13. 0 to M ________
14. 0 to N ________
15. 0 to O ________
16. 0 to P ________
17. 0 to Q ________
18. 0 to R ________
19. 0 to S ________
20. 0 to T ________
21. 0 to U ________

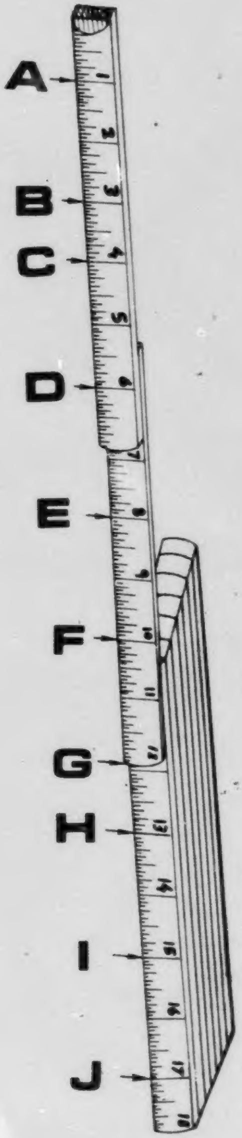
UNIT VI

MEASUREMENT

ASSIGNMENT SHEET #4--READING WHOLE NUMBERS ON A SIX-FOOT FOLDING RULE

Directions: Write the measurement in inches for each of the letters on the drawing. Change measurements over 12 inches into feet and inches.

1. A = ________
2. B = ________
3. C = ________
4. D = ________
5. E = ________
6. F = ________
7. G = ________
8. H = ________
9. I = ________
10. J = ________


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

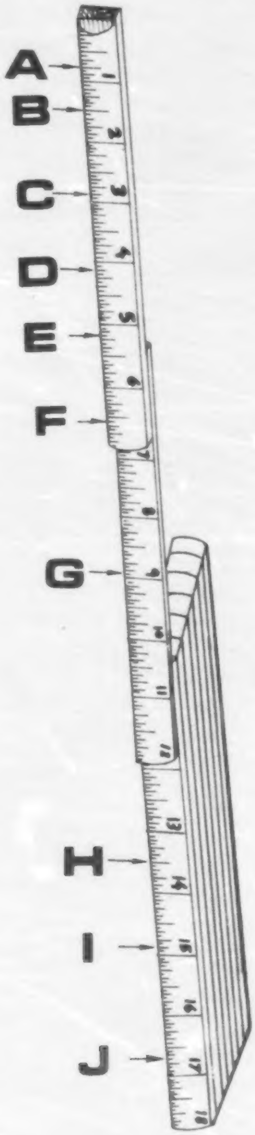
UNIT VI

MEASUREMENT

ASSIGNMENT SHEET #5--READING FRACTIONS ON A SIX-FOOT FOLDING RULE

Directions: Write the measurements for each of the letters on the drawing. Reduce each to the smallest fraction.

1. A = ________
2. B = ________
3. C = ________
4. D = ________
5. E = ________
6. F = ________
7. G = ________
8. H = ________
9. I = ________
10. J = ________



UNIT VI

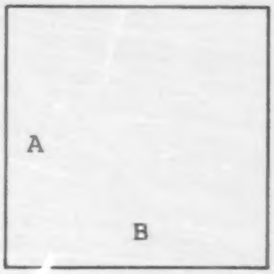
MEASUREMENT

ASSIGNMENT SHEET #6--MEASURING OBJECTS

Directions: Use a ruler to find the lengths shown on the following drawings.

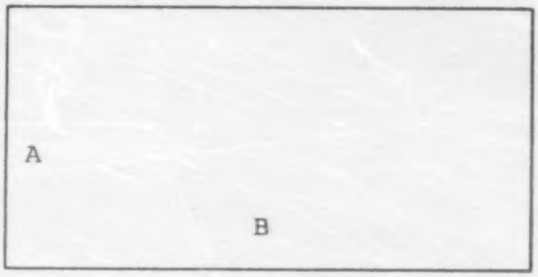
1. a.

   b.



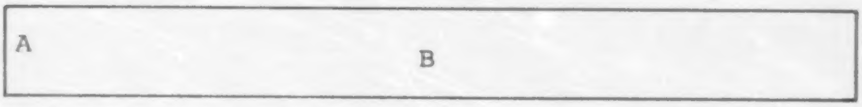
2. a.

   b.



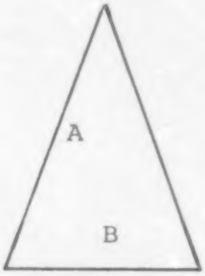
3. a.

   b.



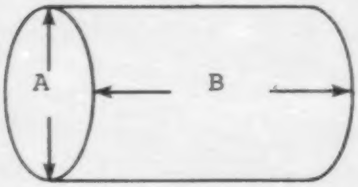
4. a.

   b.



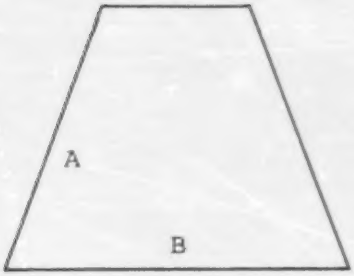
5. a.

   b.



6. a.

   b.



UNIT VI

MEASUREMENT

ASSIGNMENT SHEET #7--DRAWING LINES AND OBJECTS

Directions: Using a ruler, draw the following according to the lengths given.

1. Lines
    a. 1 1/2"
    b. 2 1/4"
    c. 3 1/8"
    d. 3 3/16"
    e. 4 15/16"
2. Squares
    a. 2" x 2"

    b. 1 3/8" x 1 3/8"

3. Triangles

a. 1 3/4" x 1 3/4" x 2"

b. 1 7/8" x 1" x 1 7/8"

UNIT VI

MEASUREMENT

ASSIGNMENT SHEET #8--REDUCING MEASUREMENTS

Directions: Reduce each of the following lengths to their smallest form. Use feet and inches for each. Use the back for any figuring.

1. 13 inches = _____ feet _____ inches
2. 15 inches = _____ feet _____ inches
3. 9 inches = _____ feet _____ inches
4. 25 inches = _____ feet _____ inches
5. 16 3/4 inches = _____ feet _____ inches
6. 19 7/8 inches = _____ feet _____ inches
7. 21 15/16 inches = _____ feet _____ inches
8. 5 4/8 inches = _____ feet _____ inches
9. 26 6/8 inches = _____ feet _____ inches
10. 11 14/16 inches = _____ feet _____ inches
11. 30 15/16 inches = _____ feet _____ inches
12. 34 2/8 inches = _____ feet _____ inches
13. 8 16/8 inches = _____ feet _____ inches
14. 21 11/4 inches = _____ feet _____ inches
15. 48 17/16 inches = _____ feet _____ inches
16. 72 inches = _____ feet _____ inches
17. 96 inches = _____ feet _____ inches
18. 120 inches = _____ feet _____ inches
19. 168 inches = _____ feet _____ inches
20. 1 yard 19 21/16 inches = _____ feet _____ inches

UNIT VI

MEASUREMENT

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The ruler should be labeled 1/8" through 3 1/2" by eighths.

Assignment Sheet #2

The ruler should be labeled 1/16" through 2 1/4" by sixteenths.

Assignment Sheet #3

1. 3/8"
2. 7/8"
3. 1 1/8"
4. 1 3/8"
5. 1 6/8" or 1 3/4"
6. 1 7/8"
7. 2 2/8" or 2 1/4"
8. 2 4/8" or 2 1/2"
9. 2 6/8" or 2 3/4"
10. 3"
11. 3/16"
12. 7/16"
13. 11/16"
14. 15/16"
15. 1 6/16" or 1 3/8"
16. 1 10/16" or 1 5/8"
17. 1 14/16" or 1 7/8"
18. 2 2/16" or 2 1/8"
19. 2 5/16"
20. 2 10/16" or 2 5/8"
21. 3'

Assignment Sheet #4

1. 1
2. 3
3. 4
4. 6
5. 8
6. 10
7. 12
8. 13 = 1'1"
9. 15 = 1'3"
10. 17 = 1'5"

Assignment Sheet #5

1. 3/4"
2. 1 1/2"
3. 2 7/8"
4. 4 1/8"
5. 5 3/16"
6. 6 9/16"
7. 8 15/16"
8. 1' 1 1/2"
9. 1' 2 7/8"
10. 1' 4 11/16"

Assignment Sheet #6

1. a. 1 1/2"
   b. 1 1/2"
2. a. 1 1/2"
   b. 3"
3. a. 1/2"
   b. 4 7/8"
4. a. 1 5/8"
   b. 1 1/8"
5. a. 1"
   b. 1 1/2"
6. a. 1 5/8"
   b. 2"

Assignment Sheet #7

Evaluated to the satisfaction of the instructor.

Assignment Sheet #8

1. 1 foot 1 inch
2. 1 foot 3 inches
3. 9 inches
4. 2 feet 1 inch
5. 1 foot 4 3/4 inches
6. 1 foot 7 7/8 inches
7. 1 foot 9 15/16 inches
8. 5 1/2 inches
9. 2 feet 2 3/4 inches
10. 11 7/8 inches
11. 2 feet 6 15/16 inches
12. 2 feet 10 1/4 inches
13. 10 inches
14. 1 foot 11 3/4 inches
15. 4 feet 1 1/16 inches
16. 6 feet
17. 8 feet
18. 10 feet
19. 14 feet
20. 4 feet 8 5/16 inches

UNIT VI

MEASUREMENT

UNIT TEST

1. Match the terms on the right to the correct definition by placing the numbers in the spaces provided.

_____ a. Any natural number that is not broken into parts

_____ b. A part of a whole number or one

_____ c. The distance or size from one point to another point

_____ d. The marks on a measuring tool indicating size or degrees

1. Dimension
2. Fraction
3. Graduation
4. Whole number

2. Identify each of the measuring tools by selecting its correct name from the list below and writing it in the blank provided.

Folding wood rule

Steel tape

Yardstick

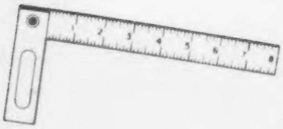
24-inch rule

12-inch rule

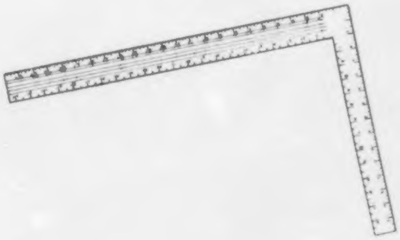
Framing square

Combination square

Try square



a. ____________________



b. ____________________

Folding wood rule

Steel tape

Yardstick

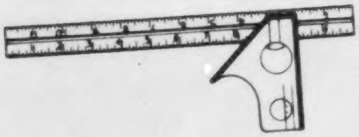
24-inch rule

12-inch rule

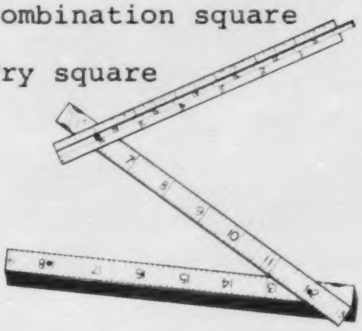
Framing square

Combination square

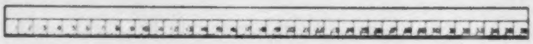
Try square



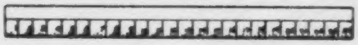
c. ________________



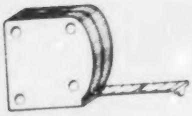
d. ________________



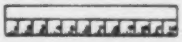
e. ________________



f. ________________



g. ________________



h. ________________

3. Identify the five graduations found on a sixteenths rule.

   a.

   b.

   c.

   d.

   e.

4. Read a ruler graduated in eighths of an inch.

5. Read a ruler graduated in sixteenths of an inch.

6. Read a ruler to a point of measurement.

7. Read the whole numbers of a ruler.

8. Read fractions of an inch on a six-foot folding rule.

9. Measure objects using a ruler.

10. Draw lines and objects to length using a ruler.

11. Reduce measurements to the smallest form.

    (NOTE: If activities 4, 5, 6, 7, 8, 9, 10, and 11 have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT VI

MEASUREMENT

ANSWERS TO TEST

1. a. 4
   b. 2
   c. 1
   d. 3
2. a. Try square
   b. Framing square
   c. Combination square
   d. Folding wood rule
   e. Yardstick
   f. 24-inch rule
   g. Steel tape
   h. 12-inch rule
3. a. Sixteenths
   b. Eighths
   c. Fourths
   d. Halves
   e. Inches

4. through 11. Evaluated to the satisfaction of the instructor.

UNIT VII

PORTABLE POWER TOOLS

UNIT OBJECTIVE

After completion of this unit, the students should be able to identify terms associated with portable power tools, name the major parts of each, and select the appropriate safety rules to be followed when using them. This knowledge will be evidenced through demonstration and by satisfactorily completing the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with portable power tools to the correct definition.
2. Select the correct general safety rules for using power tools.
3. Label each of the parts of the circular saw.
4. Select the correct safety rules for the portable circular saw.
5. Label the parts of the saber saw.
6. Select the correct safety rules for the saber saw.
7. Label the parts of the portable drill.
8. Select the correct safety rules for the portable drill.
9. Label the parts of a router.
10. Select the correct safety rules for the router.
11. Label the parts of a belt sander.
12. Select the correct safety rules for the belt sander.
13. Label the parts of a finish sander.
14. Select the correct safety rules for a finish sander.
15. Label the parts of a power plane.

16. Select the correct safety rules for the power plane.

17. Demonstrate the ability to:

    a. Square a board using the circular saw.

    b. Cut a board to shape using the saber saw.

    c. Drill holes using a portable drill.

UNIT VII

PORTABLE POWER TOOLS

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide student with objective sheet

   B. Provide student with information and job sheets

   C. Make transparencies

   D. Discuss unit and specific objectives

   E. Discuss information and job sheets

   F. Show students each power tool

   G. Demonstrate the use of power tools

   H. Have students complete job sheets

   I. Give test

II. Student:

   A. Read objective sheet

   B. Study information sheet

   C. Complete job sheets

   D. Take test

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

      1. Information Sheet #1--Power Tool Terminology and Safety

      2. Information Sheet #2--The Circular Saw

      3. Information Sheet #3--The Saber Saw

      4. Information Sheet #4--The Portable Drill

5. Information Sheet #5--The Router
6. Information Sheet #6--The Belt Sander
7. Information Sheet #7--The Finish Sander
8. Information Sheet #8--The Power Plane

C. Transparency masters

1. VII-TM-1--Be Alert
2. VII-TM-2--Turn Off Power When Making Adjustments
3. VII-TM-3--Ground Power Tools
4. VII-TM-4--Portable Circular Saw
5. VII-TM-5--Saber Saw
6. VII-TM-6--Portable Drill
7. VII-TM-7--Router
8. VII-TM-8--Belt Sander
9. VII-TM-9--Finish Sander
10. VII-TM-10--Power Plane

D. Job sheets

1. Job Sheet #1--Square a Board Using the Circular Saw
2. Job Sheet #2--Cut a Board to Shape Using a Saber Saw
3. Job Sheet #3--Drill Holes Using a Portable Drill

E. Test

F. Answers to test

II. References:

A. Hoerner, Thomas A. Power Tool Safety and Operation. St. Paul, Minnesota: Hobar Publications, 1973.

B. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Goodheart-Wilcox Company, 1976.

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #1--PORTABLE POWER TOOL TERMINOLOGY AND SAFETY

I. Terms and definitions

A. Maintenance--The care and upkeep of equipment

B. Feed--The speed the blade, bit, or cutter of a power tool is moved into the material

C. Portable--Light and easily movable tools that are usually hand-held during operation

D. Receptacle--The power source for a power tool

E. RPM--The number of turns in a minute of a blade, bit, or cutter in a power tool

F. Margin of safety--Keeping hands away from the blade, bit, or cutter a specified distance at all times

II. General power tool safety

A. Be familiar with the operating procedures of each machine before you use it.

B. Be alert when operating power tools.

C. Make all adjustments with power tools turned off.

D. Do not allow others to distract you.

E. Keep any safety guards or covers in place.

F. Wear safety glasses when using or around power tools.

G. Be sure machines, receptacles, and plugs are properly grounded.

H. Develop a good safety attitude.

I. Be aware of the types of safety zones and do not violate any of them.

J. Have permission from your instructor before operating power tools.

K. Perform necessary maintenance on power tools before using.

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #2--THE CIRCULAR SAW

III. Parts of portable circular saw

A. Handle

B. Switch

C. Motor

D. Upper guard

E. Telescoping guard

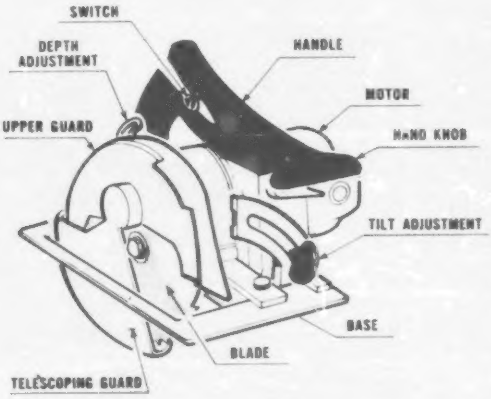
F. Hand knob

G. Tilt adjustment

H. Base

I. Depth adjustment

J. Blade


SWITCH
DEPTH ADJUSTMENT
HANDLE
MOTOR
UPPER GUARD
HAND KNOB
TILT ADJUSTMENT
BASE
BLADE
TELESCOPING GUARD

IV. Safety for the portable circular saw

A. Do not change blades with the cord plugged in.

B. Use the correct blade and be sure it is sharp.

C. Be sure the work is supported correctly.

D. Do not force saw into the work.

E. Adjust the depth of cut so that the teeth of the blade will clear the depth of the material about 1/8 inch.

F. Use both hands when sawing.

G. Be careful not to cut into the sawhorse or other clamping device.

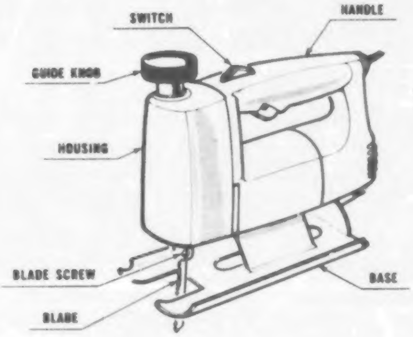
UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #3--THE SABER SAW

V. Parts of a saber saw

- A. Switch
- B. Guide knob
- C. Housing
- D. Blade screw
- E. Blade
- F. Base
- G. Handle



VI. Safety for the saber saw

- A. Select the correct blade for your work and saw.
- B. Do not cut curves so sharp it will twist the blade.
- C. Make sure the work is well supported.
- D. Do not saw into the sawhorse or other supports.
- E. Turn on the motor before the blade touches the work.
- F. Disconnect the saw before making adjustments.
- G. Make sure at least two teeth will touch the material being cut at all times.
- H. Make sure the blade will saw completely through the material.
- I. Keep a light downward pressure on the saw.
- J. Shut the saw off and allow the blade to stop before removing the blade from a cut.
- K. Remove the blade before storing the saw.

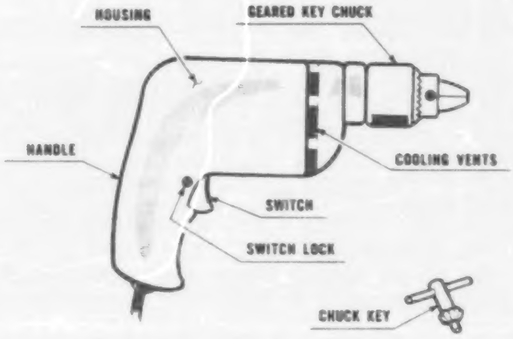
UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #4--THE PORTABLE DRILL

VII. Parts of a portable drill

   A. Housing
   B. Geared key chuck
   C. Switch
   D. Switch lock
   E. Chuck wrench
   F. Cooling vents
   G. Handle



VIII. Safety for the power drill

   A. Use the correct drill bit.

   B. Mount the drill bit securely.

   C. Do not hammer on the chuck key.

   D. Make sure the drill bit runs true.

   E. Mount work securely so it will not turn.

   F. Make sure the drill will provide the correct RPM for the size of drill bit being used.

      (NOTE: Smaller drill bits require more RPM than larger drill bits.)

   G. Hold the drill firmly with both hands.

   H. Keep the drill aligned with the hole while drilling.

   I. Withdraw a drill several times when drilling a deep hole.

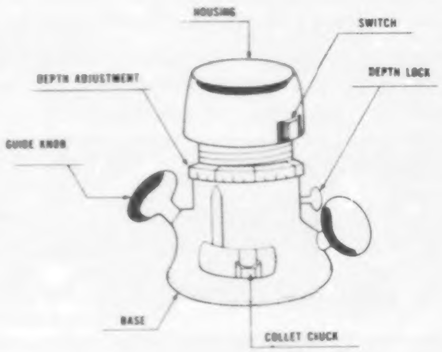
      (NOTE: This allows the cuttings to clear and prevents binding.)

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #5--THE ROUTER

IX. Parts of a router


HOUSING
SWITCH
DEPTH ADJUSTMENT
DEPTH LOCK
GUIDE KNOB
BASE
COLLET CHUCK

- A. Housing
- B. Depth adjustment
- C. Guide knobs
- D. Depth lock
- E. Base
- F. Collet chuck
- G. Switch

X. Safety for the router

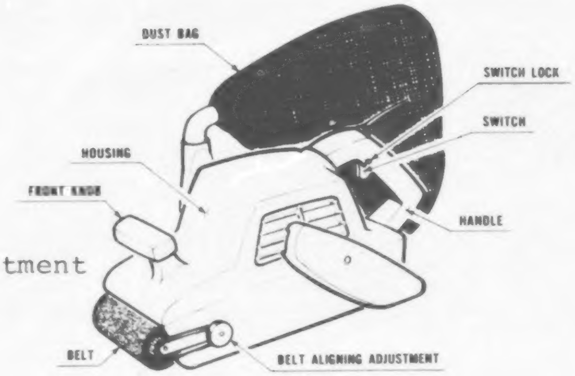
- A. Disconnect router before changing bits.
- B. Tighten bits securely in the collet.
- C. Select the correct bit for the job.
- D. Secure the material to be cut.
- E. Allow the cutter to stop before lifting the tool from the work.
- F. Place the router in a secure place when the job is completed.
- G. Hold the router with both hands.

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #6--THE BELT SANDER

XI. Parts of a belt sander


DUST BAG
SWITCH LOCK
SWITCH
HOUSING
FRONT KNOB
HANDLE
BELT
BELT ALIGNING ADJUSTMENT

- A. Housing
- B. Dust bag
- C. Handle
- D. Switch
- E. Belt aligning adjustment
- F. Belt
- G. Front knob
- H. Switch lock

XII. Safety for the belt sander

- A. Disconnect the sander before changing belts.
- B. Empty dust bags before using.
- C. Clamp the stock to be sanded to the table or vise.
- D. Move the sander with the grain of the wood.
- E. Lift the sander from the work before the sander stops.
- F. Wait until the sander has stopped before setting it down.
- G. Check the sanding belt occasionally to see that it is running straight.
- H. Do not use excessive pressure to remove wood.
- I. Use the correct grit abrasive belt for the job.

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #7--THE FINISH SANDER

XIII. Parts of a finish sander

A. Housing

B. Switch lock

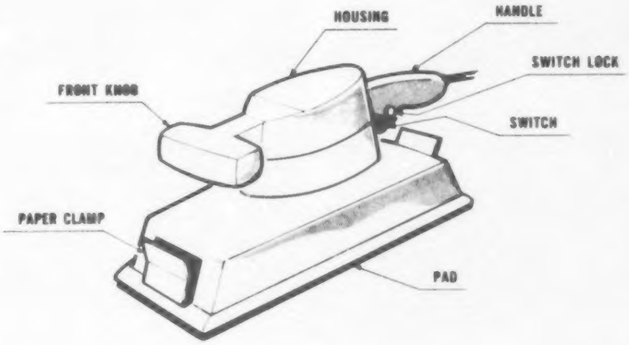
C. Switch

D. Handle

E. Paper clamps

F. Pad

G. Front knob


HOUSING
HANDLE
SWITCH LOCK
FRONT KNOB
SWITCH
PAPER CLAMP
PAD

XIV. Safety for a finish sander

A. Disconnect the sander before attaching sandpaper.

B. Use the proper grit and type of sandpaper.

C. Start the sander above the work.

D. Hold the sander securely.

E. Apply only light downward pressure.

F. Lift the sander off the work before stopping the sander.

G. Remove sandpaper and sawdust before storing.

UNIT VII

PORTABLE POWER TOOLS

INFORMATION SHEET #8--THE POWER PLANE

XV. Parts of a power plane

A. Housing

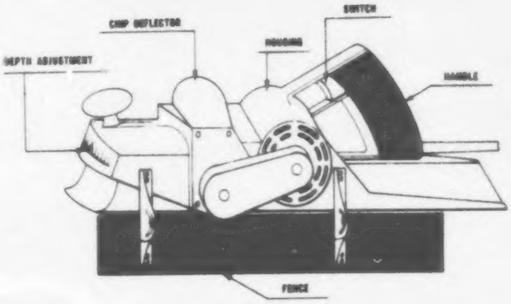
B. Handle

C. Switch

D. Chip deflector

E. Fence

F. Depth adjustment



XVI. Safety for the power plane

A. Disconnect the plane before making adjustments.

B. Keep blades sharp and free from nicks.

C. Hold the plane in both hands before pulling the switch.

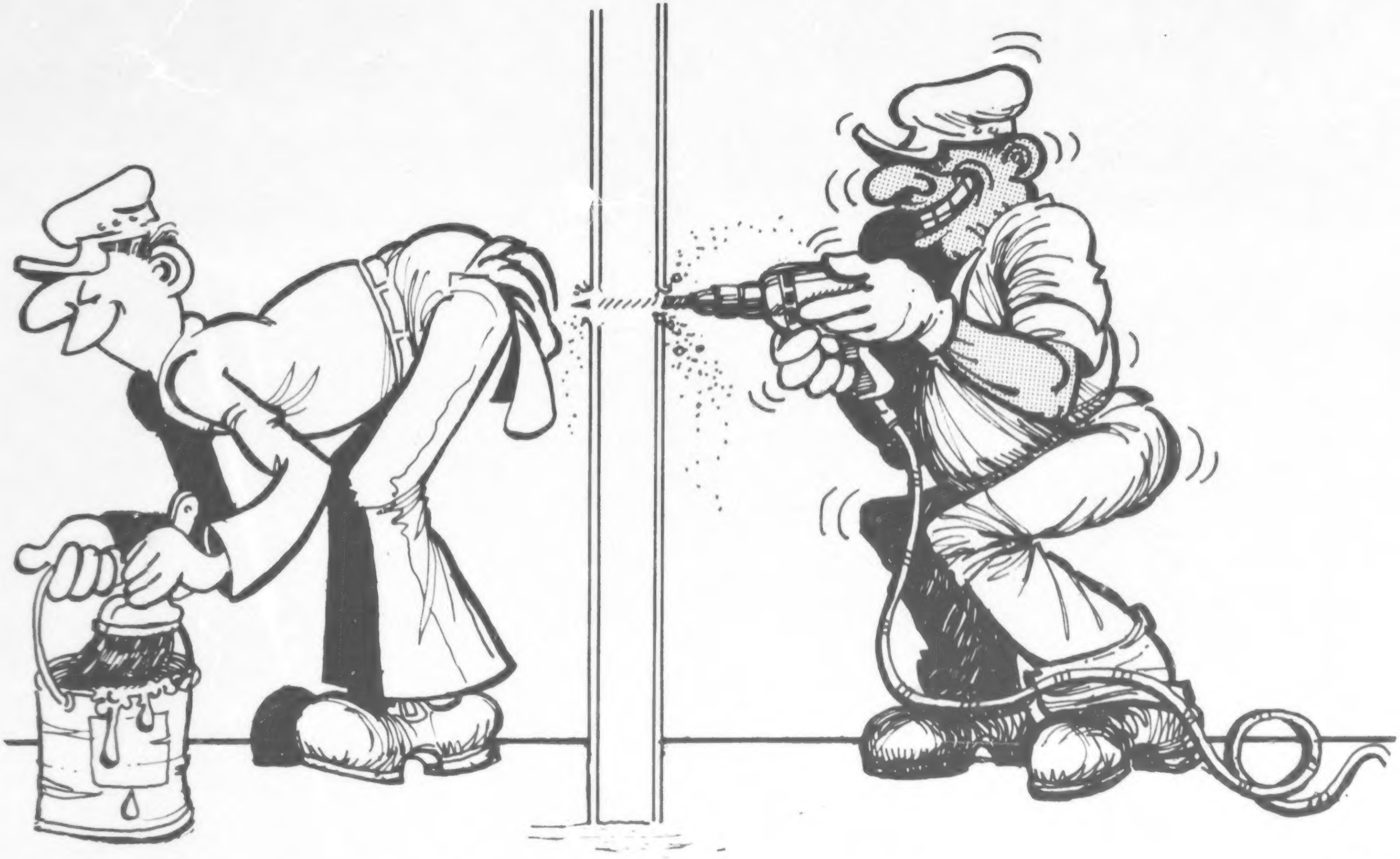
D. Hold the plane in both hands until it stops.

E. Have stock securely clamped.

F. Allow plenty of clearance between the plane and any clamping device or table.

G. Allow the plane to stop before setting it down after completing a job.

BE ALERT



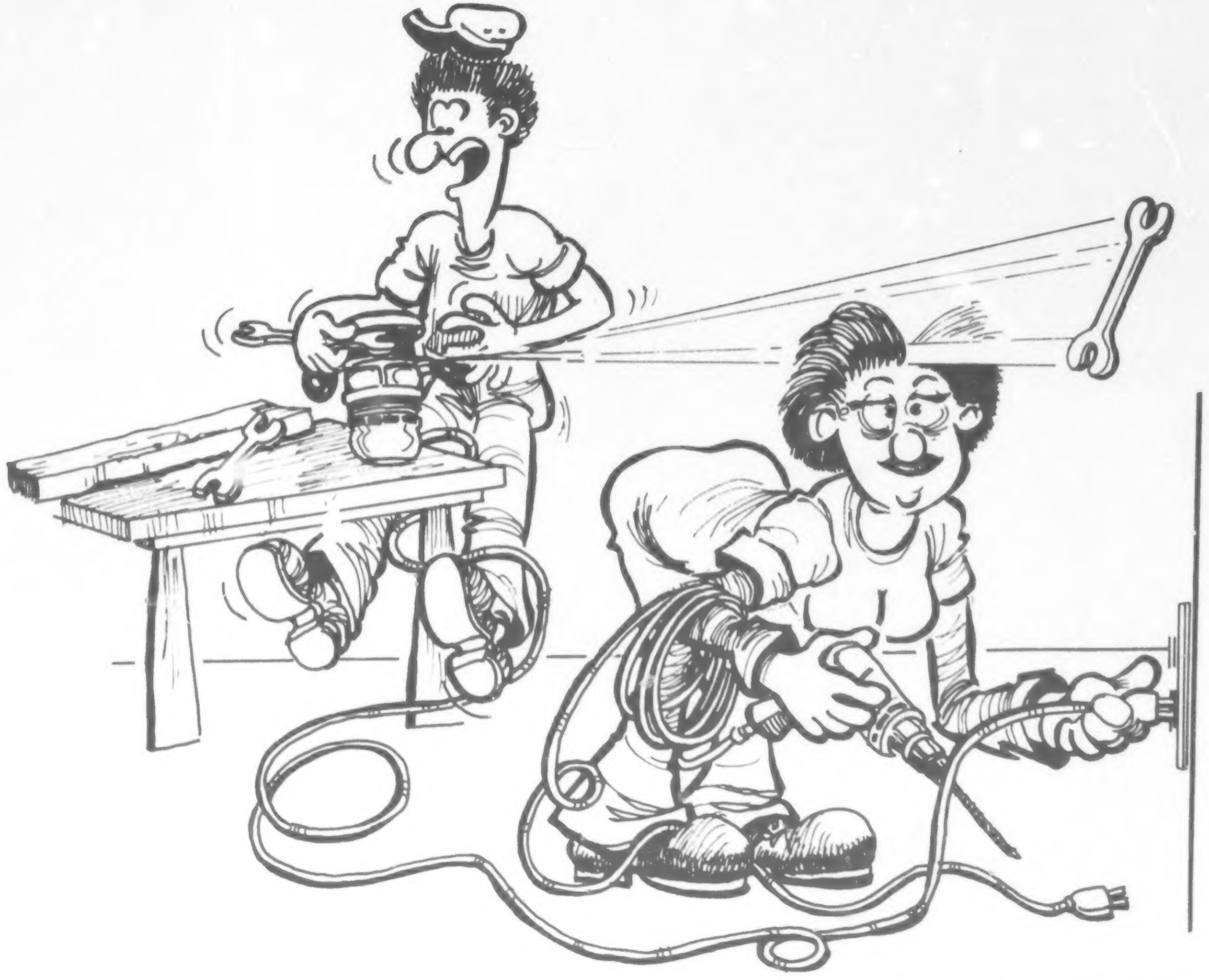
TM-1

282

VII-21

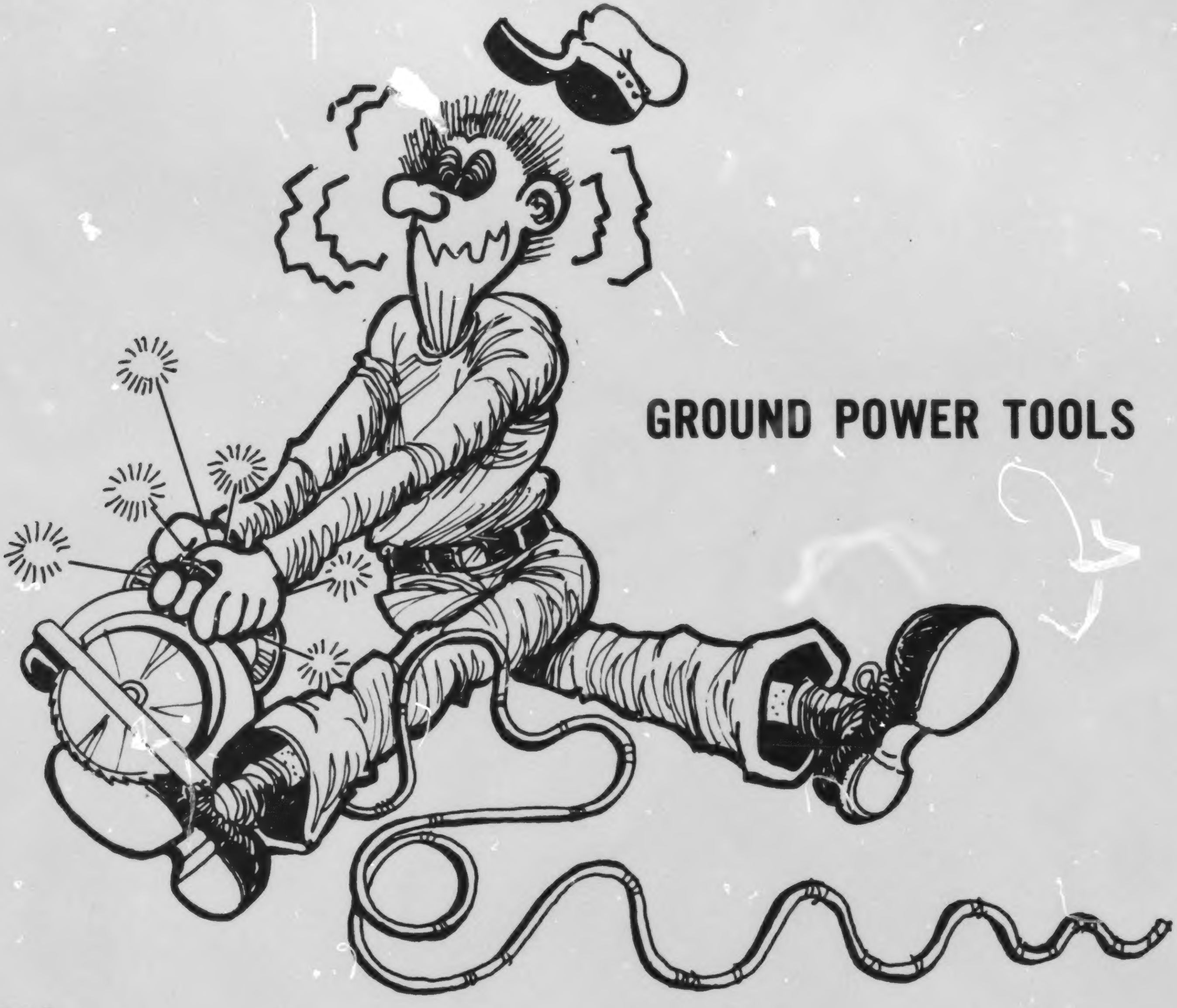
283

TURN OFF POWER WHEN MAKING ADJUSTMENTS



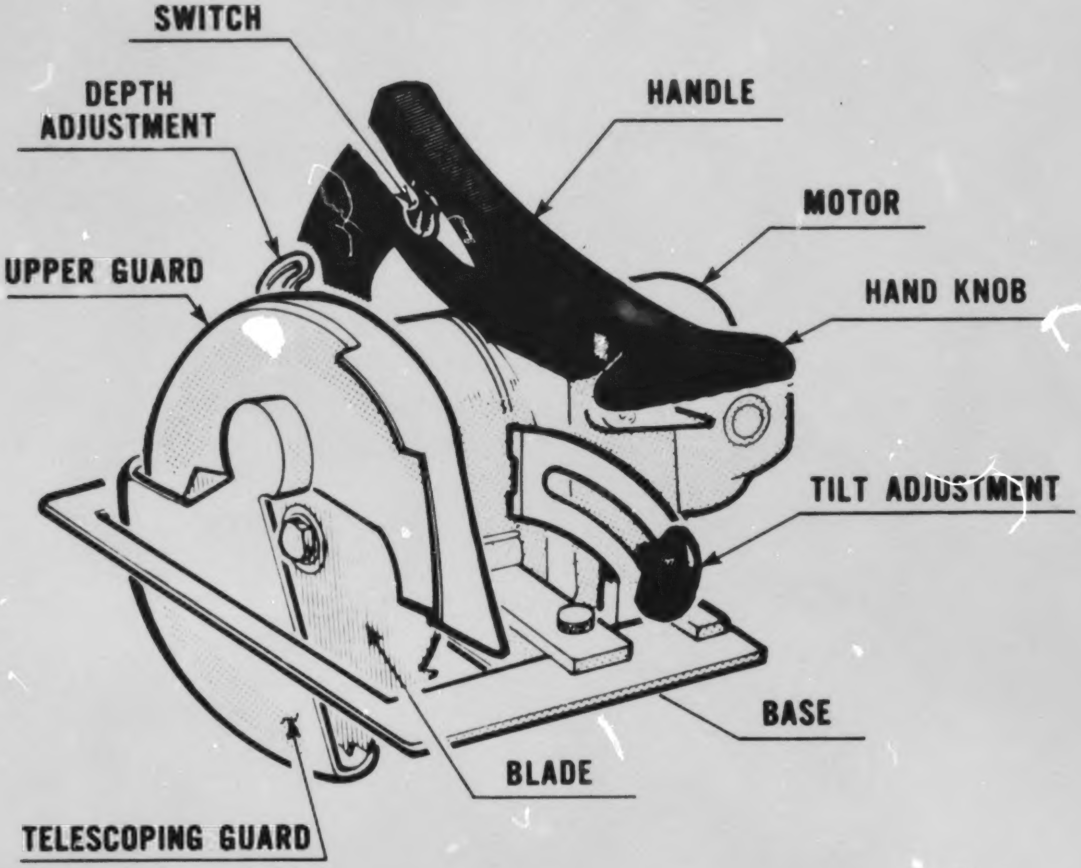
TM-2

VII-23

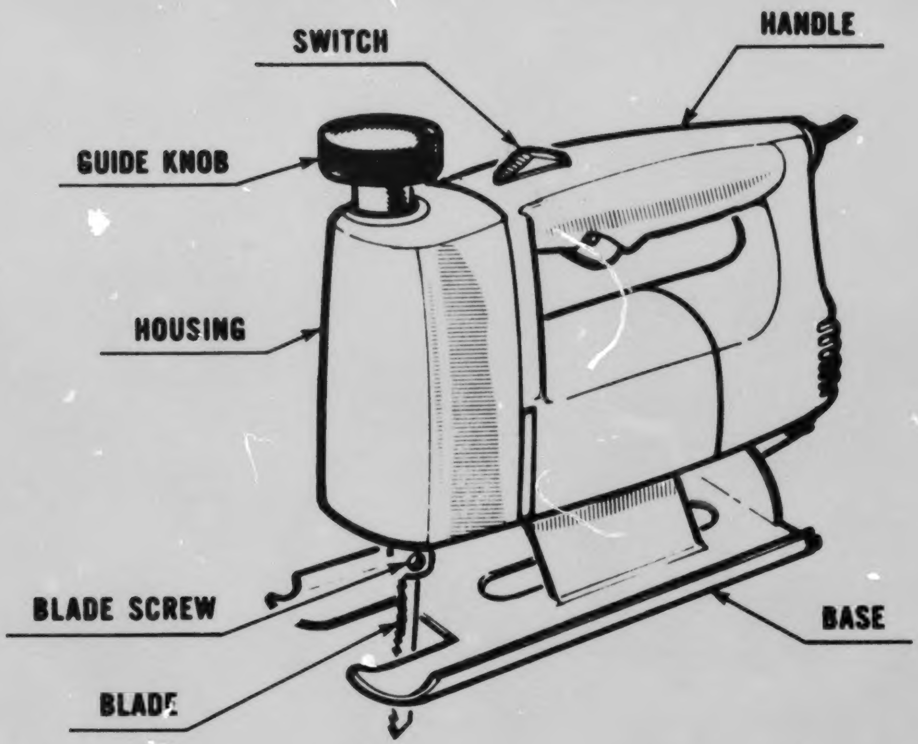


GROUND POWER TOOLS

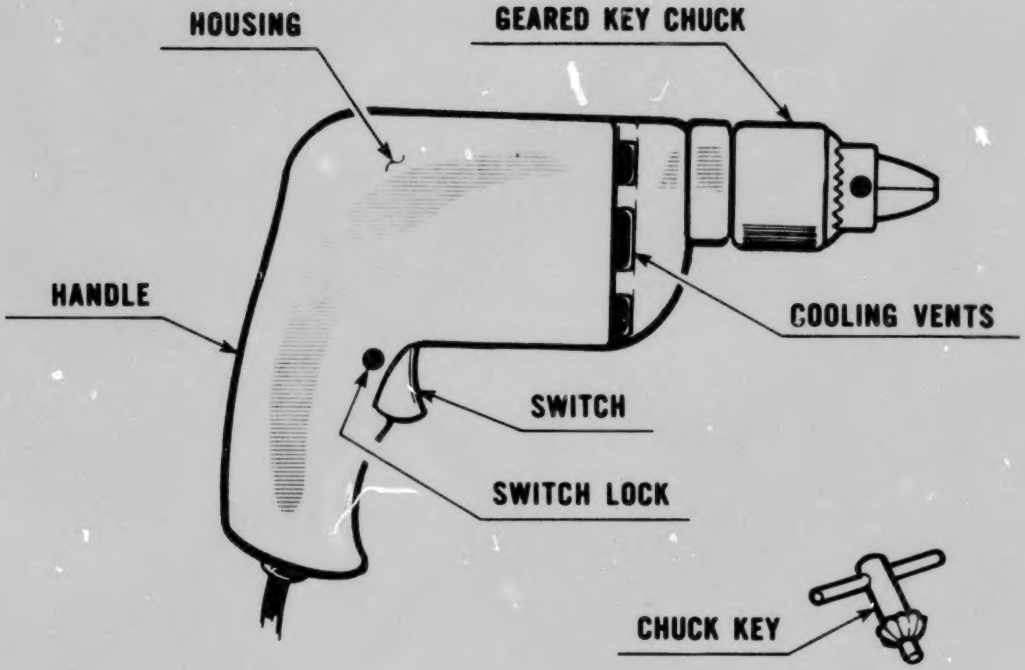
PORTABLE CIRCULAR SAW


SWITCH
DEPTH ADJUSTMENT
HANDLE
MOTOR
UPPER GUARD
HAND KNOB
TILT ADJUSTMENT
BASE
BLADE
TELESCOPING GUARD

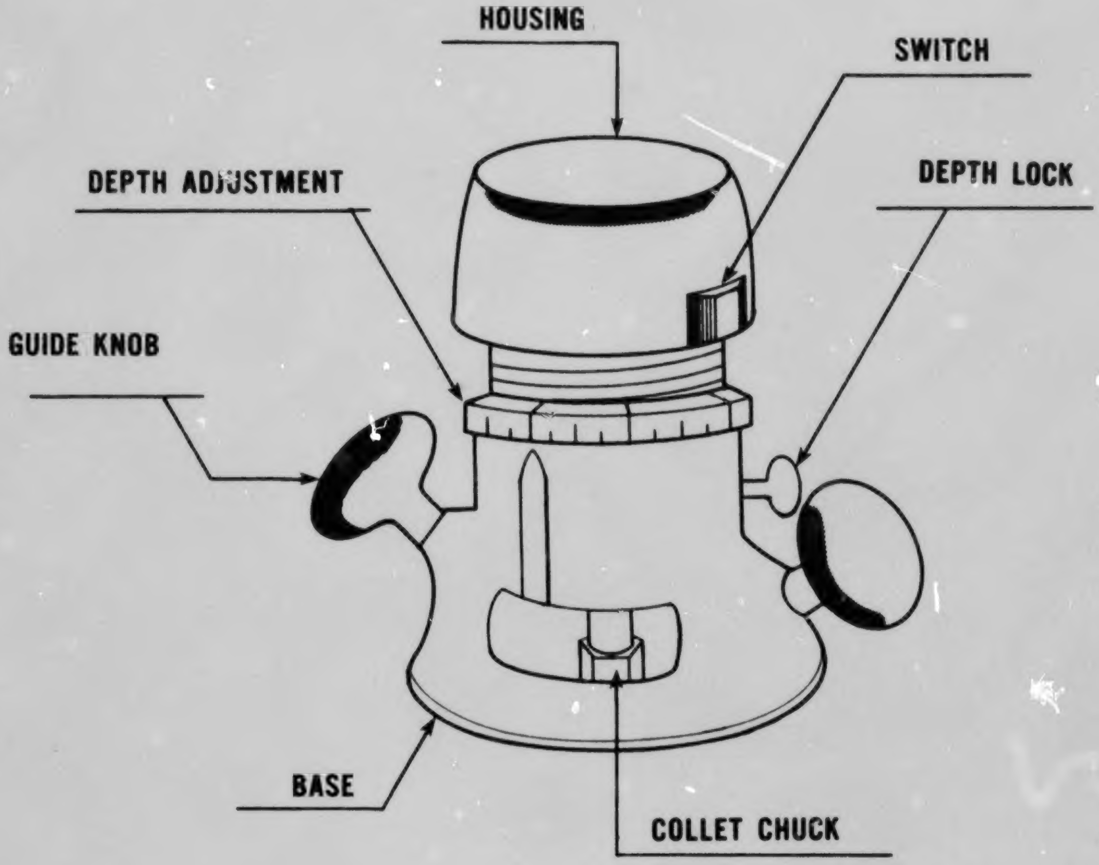
SABER SAW


SWITCH
HANDLE
GUIDE KNOB
HOUSING
BLADE SCREW
BASE
BLADE

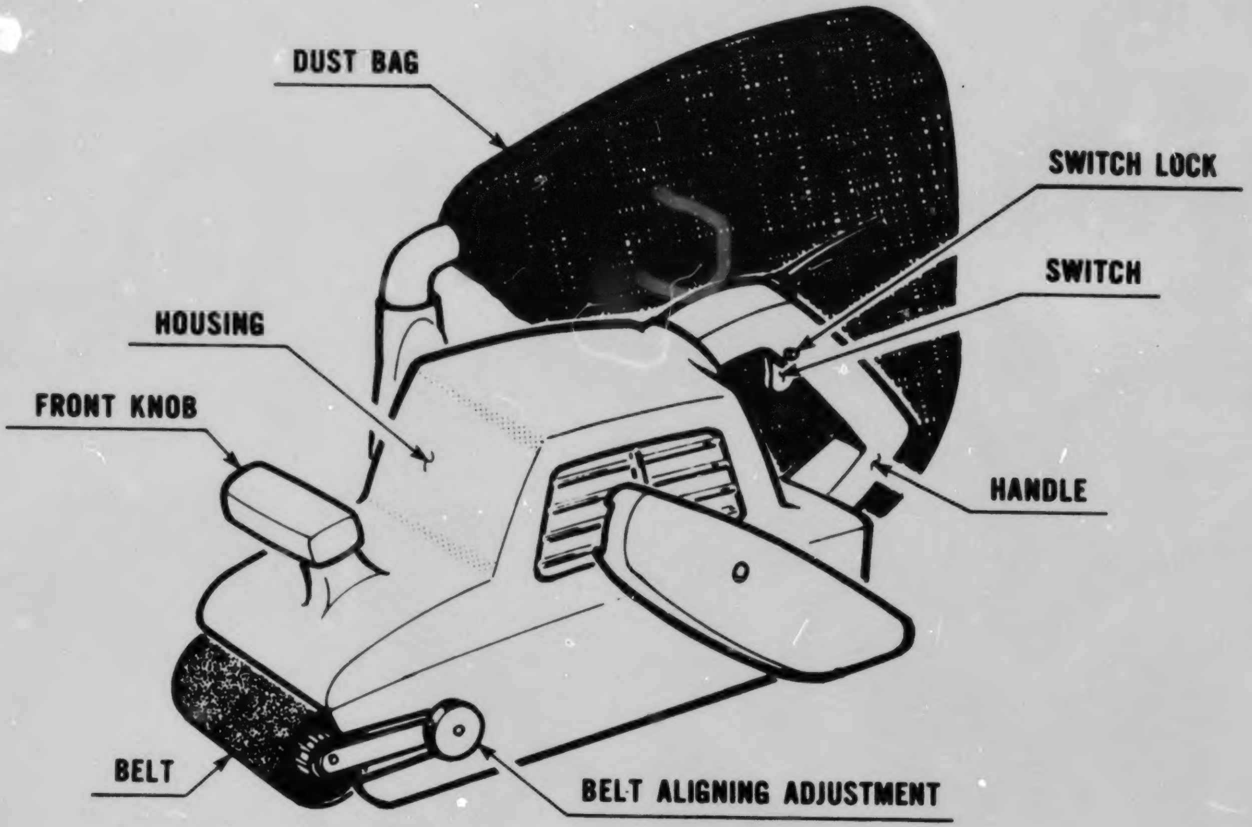
PORTABLE DRILL


HOUSING
GEARED KEY CHUCK
HANDLE
COOLING VENTS
SWITCH
SWITCH LOCK
CHUCK KEY

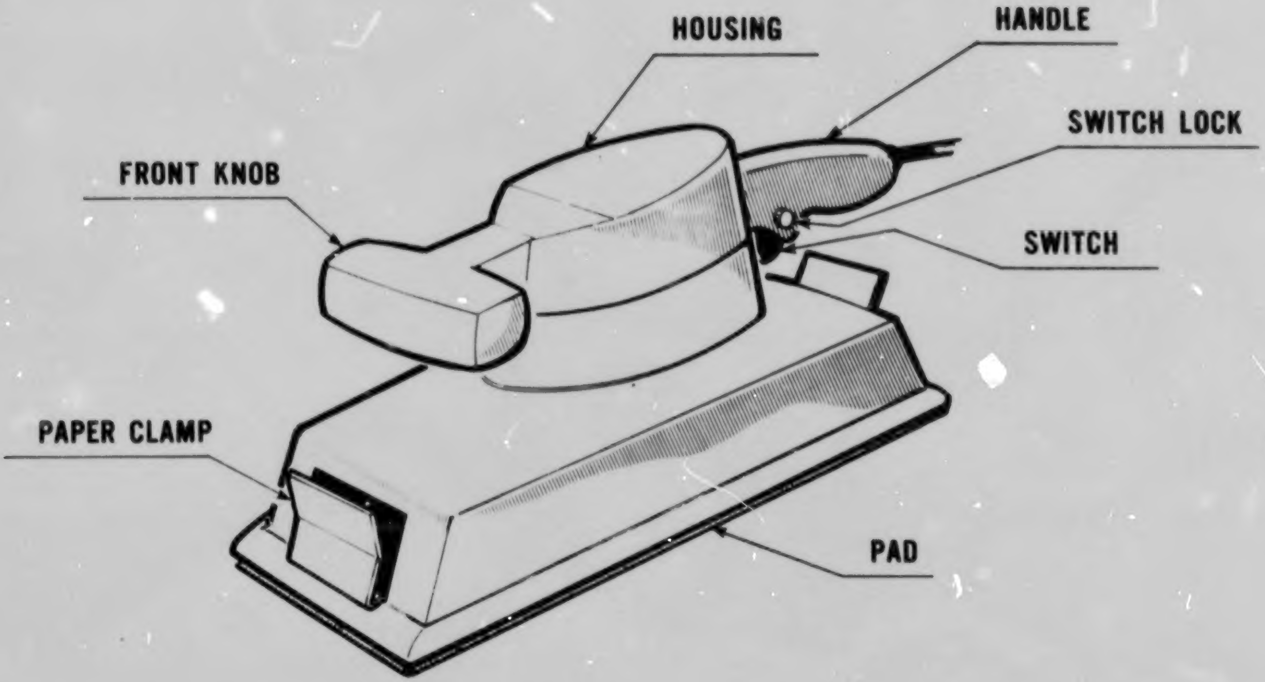
ROUTER


HOUSING
SWITCH
DEPTH ADJUSTMENT
DEPTH LOCK
GUIDE KNOB
BASE
COLLET CHUCK

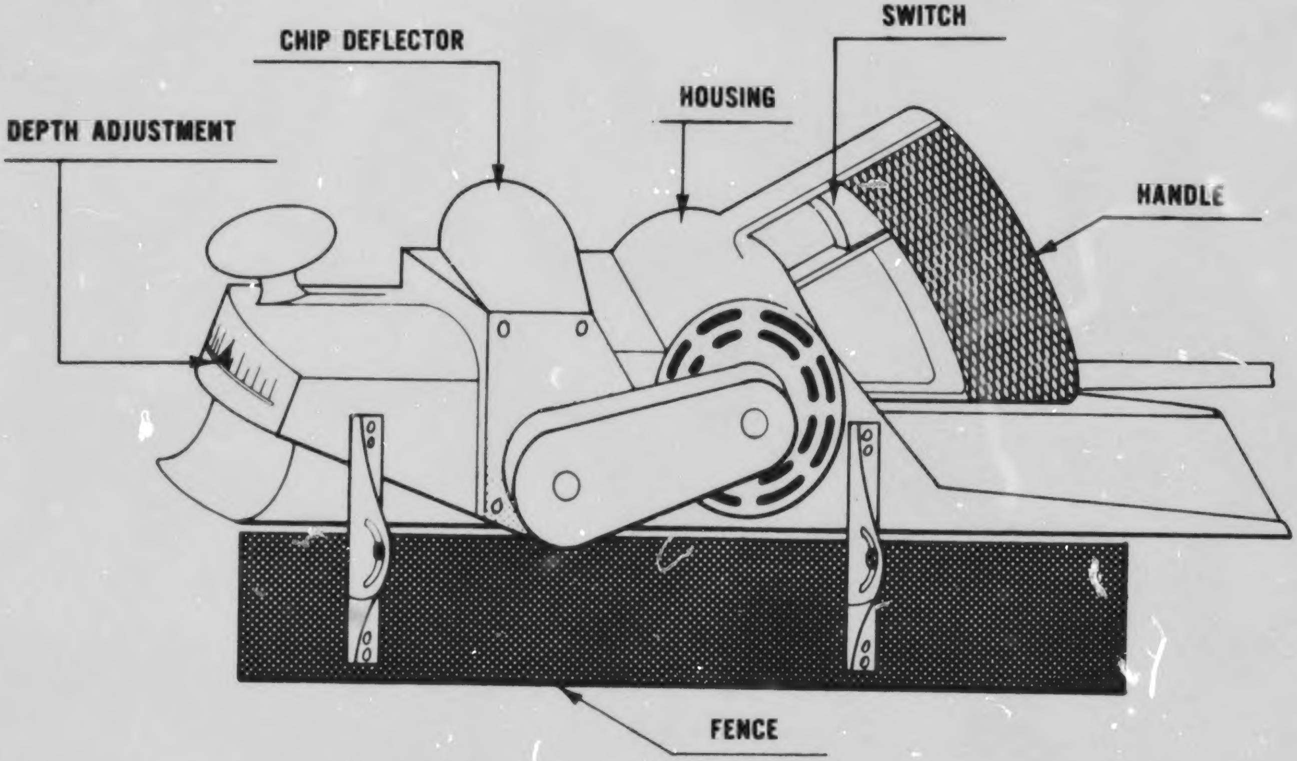
BELT SANDER


DUST BAG
SWITCH LOCK
SWITCH
HOUSING
FRONT KNOB
HANDLE
BELT
BELT ALIGNING ADJUSTMENT

FINISHING SANDER


HOUSING
HANDLE
SWITCH LOCK
FRONT KNOB
SWITCH
PAPER CLAMP
PAD

POWER PLANE


CHIP DEFLECTOR
SWITCH
HOUSING
DEPTH ADJUSTMENT
HANDLE
FENCE

UNIT VII

PORTABLE POWER TOOLS

JOB SHEET #1--SQUARE A BOARD USING THE CIRCULAR SAW

I. Tools and materials

A. Circular saw

B. Try square

C. Pencil

D. Wood vise

E. Safety glasses

F. Scrap piece of lumber

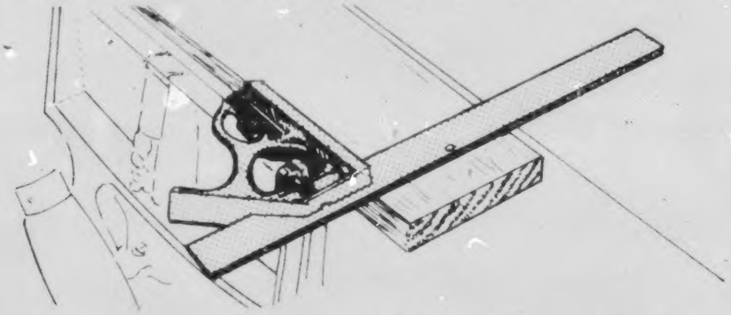
II. Procedure

A. Put on safety glasses.

B. Place the board into the wood vise and tighten securely.

(NOTE: A sawhorse may be used if the board is long enough.)

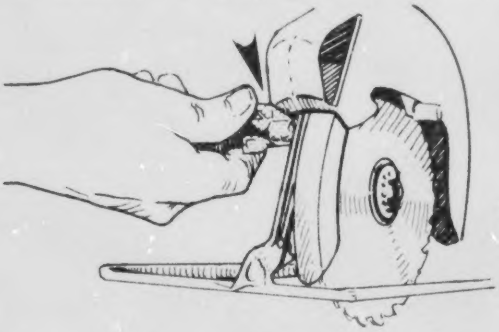
C. Use the try square to layout a line about 1 inch from one end and perpendicular to the side.



D. Check the circular saw to see if it is set at 90° on the scale.

E. Set the saw on the board so that the teeth hang over the edge.

F. Set the depth adjustment so that the blade will clear the board the depth of the teeth.



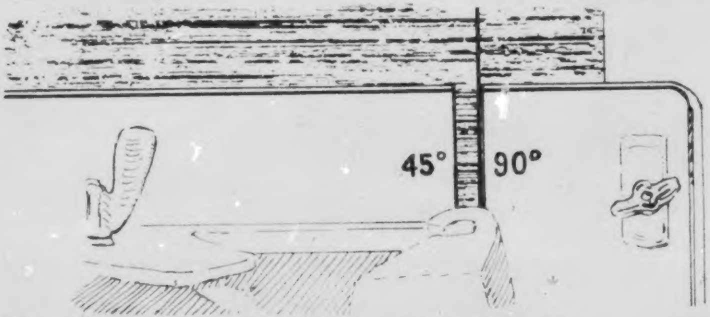
G. Plug the saw into the receptacle.

H. Place the saw edge on the line to be cut.

(NOTE: Do not place your finger on the switch.)

I. Pull the switch and advance into the wood.

(NOTE: Keep the 90° side of the base on the line.)



J. Guide the saw along the cutting line.

(NOTE: If saw stalls, back saw out but do not release trigger.)

K. Release switch when end of cut is reached.

L. Allow saw to stop before setting it down.

M. Clean up work area.

UNIT VII

PORTABLE POWER TOOLS

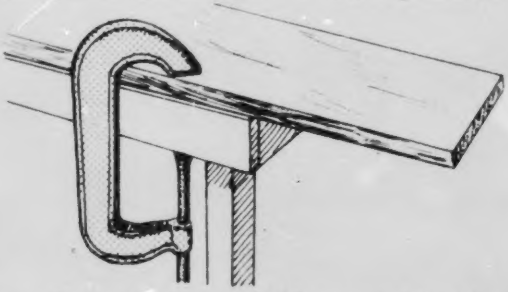
JOB SHEET #2--CUT A BOARD TO SHAPE USING THE SABER SAW

I. Tools and materials

- A. Saber saw
- B. Pencil
- C. C-clamp
- D. Safety glasses
- E. Scrap piece of wood

II. Procedure

- A. Put on safety glasses.
- B. Place board on table with c-clamp holding it in place.



- C. Draw a curved pattern on the part extended from the table.

  (EXAMPLE: Use a circle, an "S", or "U" shape.)

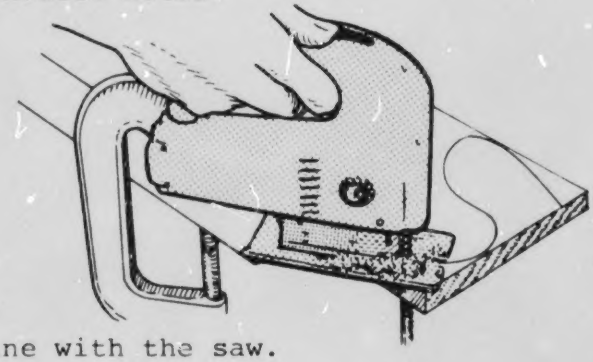
- D. Place correct blade in saw and tighten securely.

  (NOTE: Make sure at least two teeth will touch the material at all times.)

- E. Place the front edge of the saw on the edge of the board.
- F. Start the saw and hold the saw with both hands.
- G. Advance slowly into the board on the line.

H. Follow the line slowly.

(NOTE: Too much pressure will result in a broken blade or overheated motor



I. Follow the line with the saw.

(NOTE: Do not attempt to cut curves so tight that the blade will be twisted.)

J. Support the drop-off section when finishing the cut.

K. Stop the motor when cut is finished.

L. Allow saw to stop before setting it down.

M. Clean up work area.

UNIT VII

PORTABLE POWER TOOLS

JOB SHEET #3--DRILL HOLES USING THE PORTABLE DRILL

I. Tools and materials

  A. Portable drill

  B. Pencil

  C. Try square

  D. Wood vise

  E. Safety glasses

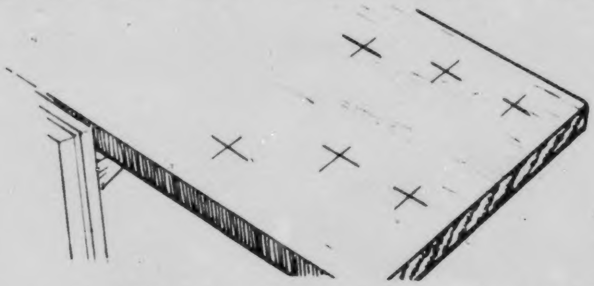
  F. Drill bit

II. Procedure

  A. Put on safety glasses.

  B. Place board in vise and tighten securely.

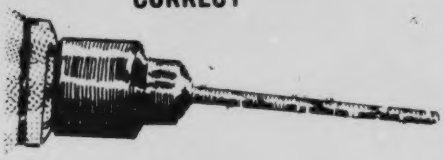
  C. Layout several hole locations using the try square.



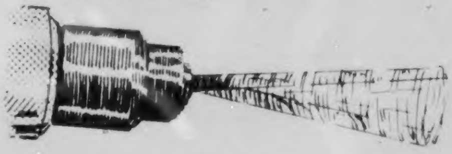
  D. Select a drill bit about 1/4 inch in diameter.

  E. Install it in the drill and tighten securely.

  F. Turn the switch of the drill on for a second and watch the bit to see if it runs true.



CORRECT

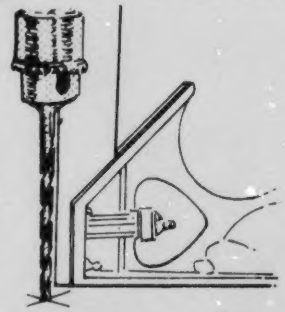


BIT CHUCKED OFF CENTER

G. Pull drill switch and allow it to reach full RPM.

H. Hold drill at correct angle to hole location.

I. Feed the drill into the wood with steady pressure.



J. Withdraw the drill several times to clear the chips.

K. Ease off the drill as it starts to break through.

(NOTE: This prevents grabbing or splintering.)

L. Remove the drill bit from the hole with the drill running.

M. Repeat this process for all hole locations.

N. Unplug the drill and remove the drill bit when finished.

O. Clean up work area.

UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 1

1. Match the terms on the right to the correct definition by placing the number in the blank provided.

_____ a. The care and upkeep of equipment

_____ b. The speed the blade, bit, or cutter of a power tool is moved into the material

_____ c. Light and easily movable tools that are usually hand-held during operation

_____ d. The power source for a power tool

_____ e. The number of turns in a minute of a blade, bit, or cutter in a power tool

_____ f. Keeping hands away from the blade, bit, or cutter a specified distance at all times

1. RPM
2. Margin of safety
3. Maintenance
4. Feed
5. Portable
6. Receptacle

2. Select the correct general safety rules for using power tools by placing a "✓" in front of each correct statement.

_____ a. Become familiar with the operating procedures of each machine by using it.

_____ b. Be alert when operating power tools.

_____ c. Make adjustments with power tools turned off.

_____ d. Do not allow others to distract you.

_____ e. Remove any safety guards that are in your way.

_____ f. Wear safety glasses when using or around power tools.

_____ g. Be sure machines, receptacles, and plugs are properly grounded.

_____ h. Develop a good safety attitude.

_____ i. Colored stripes around machines are for decoration.

_____ j. Have permission from your instructor before operating power tools.

_____ k. Leave maintenance up to your instructor.

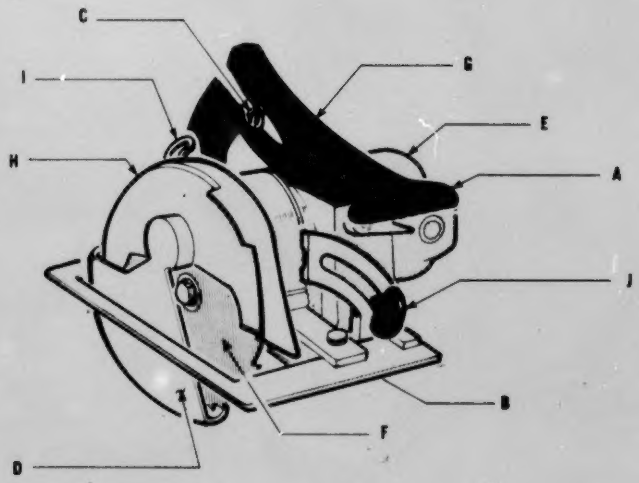
UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 2

3. Label each of the parts of the circular saw.

Handle
Switch
Motor
Upper guard
Telescoping guard
Hand knob
Tilt adjustment
Base
Depth adjustment
Blade



4. Select the correct safety rules for the portable circular saw by writing either safe or unsafe in each of the blanks below.

______________ a. Do not change blades with the saw plugged in.

______________ b. Use the same blade for all jobs.

______________ c. Support your work correctly.

______________ d. Rapidly push the saw into the work.

_______________ e. The blade should clear the work two inches.

_______________ f. Use your right hand to hold the saw.

_______________ g. Sawhorses are designed to cut into.

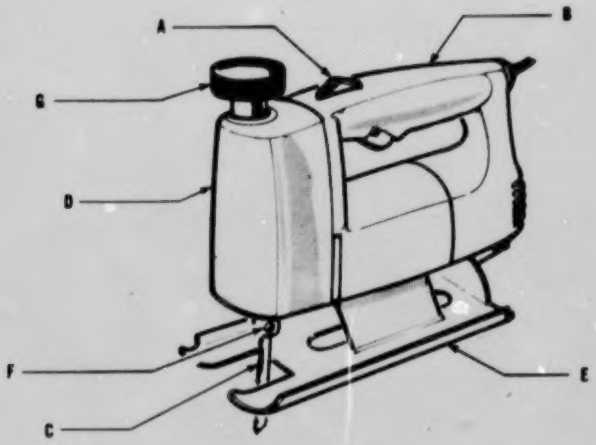
UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 3

5. Label the parts of a saber saw.

Switch	Blade
Guide knob	Base
Housing	Handle
Blade screw	



6. Select the correct safety rules for the saber saw by placing either safe or unsafe in each of the blanks below.

______________ a. One blade will work for any job.

______________ b. Saber saws will cut tight curves with any blade.

______________ c. Do not support the end being cut off.

______________ d. Do not saw into the sawhorse.

______________ e. Hold the blade against the work before turning it on.

______________ f. Leave the saw plugged in to make adjustments.

______________ g. Only one tooth of the blade should touch thin material.

______________ h. Make sure the blade will cut completely through the material.

______________ i. Pull up lightly on the saw.

______________ j. Remove the saw from the cut with the blade moving.

______________ k. Leave the blade on the saw when storing.

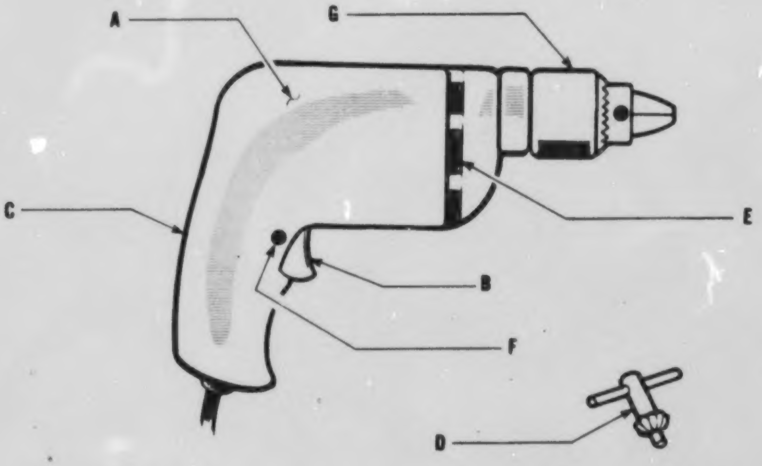
UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 4

7. Label the parts of a portable drill.

Housing	Chuck wrench
Geared key chuck	Cooling vents
Switch	Handle
Switch lock	



8. Select the correct safety rules for the portable drill by placing either safe or unsafe in each of the blanks below.

______________ a. Use the correct drill bit.

______________ b. Mount the drill bit securely.

______________ c. Hammer the chuck key tight.

______________ d. Make sure the drill bit runs true.

______________ e. Mount the work securely so it will not turn.

______________ f. Make sure the drill will provide the correct RPM for the drill bit being used.

_____________ g. Hold the drill with one hand.

_____________ h. Keep the drill aligned with the hole while drilling.

_____________ i. Never withdraw the drill until the hole is through.

UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 5

9. Label the parts of a router.

Housing

Depth adjustment

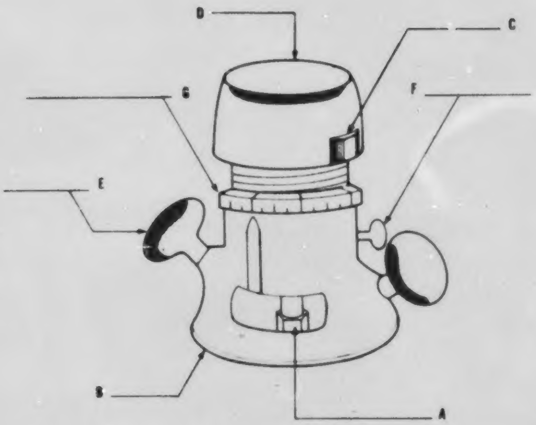
Guide knobs

Depth lock

Base

Collet chuck

Switch



10. Select the correct safety rules for the router by placing either safe or unsafe in each of the blanks below.

_____________ a. Disconnect the router before changing bits.

_____________ b. Tighten the bits securely in the collet.

_____________ c. Select the correct bit for the job.

_____________ d. Keep the material loose so it can be easily moved.

_____________ e. Allow the cutter to stop before lifting the tool from the work.

____________ f. Place the router in a secure place when the job is completed.

____________ g. Hold the router with both hands.

UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 6

11. Label the parts of a belt sander.

Housing

Dust bag

Handle

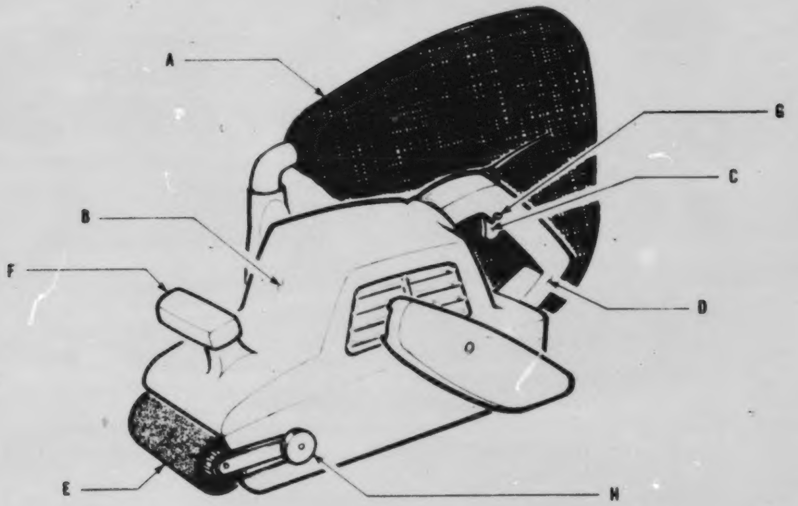
Switch

Belt aligning adjustment

Belt

Front knob

Switch lock



12. Select the correct safety rules for the belt sander by placing either safe or unsafe in each blank below.

_______________ a. Disconnect the sander before changing belts.

_______________ b. Empty dust bags yearly.

_______________ c. Clamp the stock to the table or vise.

_______________ d. Move the sander across the grain of the wood.

_______________ e. Allow the sander to stop before lifting it from the work.

_____________ f. Set the sander down before it stops.

_____________ g. Check the sanding belt occasionally to see if it is running straight.

_____________ h. Use excessive pressure to remove more wood.

_____________ i. Always use the coarse grit paper.

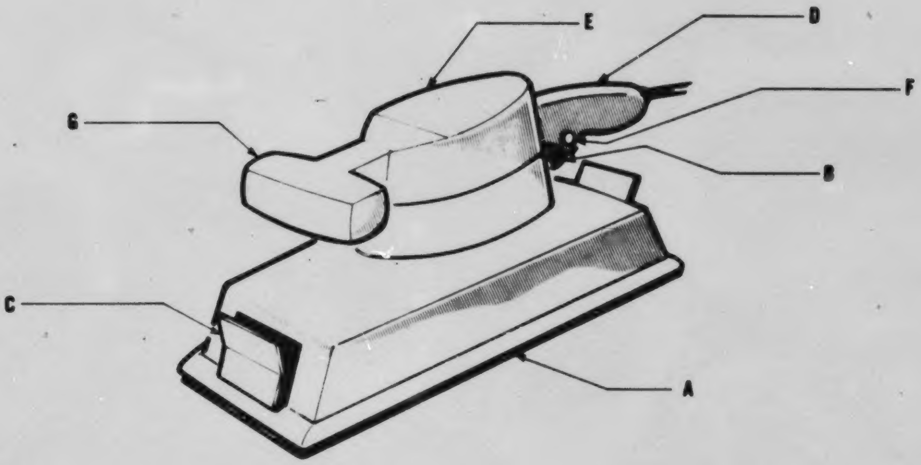
UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 7

13. Label the parts of a finish sander.

Housing	Paper clamps
Switch lock	Pad
Switch	Front knob
Handle	



14. Select the correct safety rules for a finish sander by placing either safe or unsafe in the blank provided.

______________ a. Disconnect the sander before attaching sandpaper.

______________ b. Use the proper grip and type of sandpaper.

______________ c. Start the sander on the work.

______________ d. Hold the sander securely.

______________ e. Apply heavy pressure.

______________ f. Stop the sander while still on the work.

______________ g. Remove the sandpaper and sawdust before storing.

UNIT VII

PORTABLE POWER TOOLS

UNIT TEST--PART 8

15. Label the parts of the power plane.

Housing

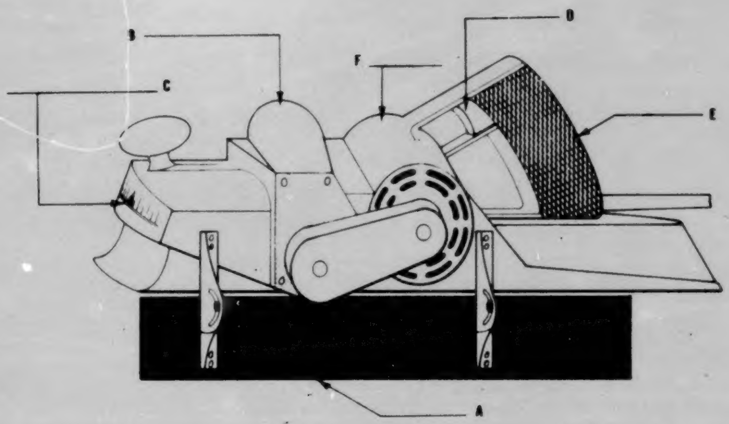
Handle

Switch

Chip deflector

Fence

Depth adjustment



16. Select the correct safety rules for the power plane by placing either safe or unsafe in each of the blanks below.

______________ a. Disconnect the plane before making adjustments.

______________ b. Keep blades [illegible]ightly dull.

______________ c. Hold the p[illegible]e in your left hand only.

______________ d. Hold the plane with both hands until it stops.

______________ e. Have stock securely clamped.

______________ f. Allow plenty of clearance between the plane and clamping devices.

______________ g. Allow the plane to slow down a little before setting it down.

17. Demonstrate the ability to:

    a. Square a board using the circular saw.

    b. Cut a board to shape using the saber saw.

    c. Drill holes using a portable drill.

    (NOTE: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT VII

PORTABLE POWER TOOLS

ANSWERS TO TEST

PART 1

1. a. 4
   b. 5
   c. 6
   d. 7
   e. 1
   f. 2

2. a. ✓
   b. ✓
   c. ✓
   d. ✓
   e.
   f. ✓
   g. ✓
   h. ✓
   i.
   j. ✓
   k.

PART 2

3. a. Hand knob
   b. Base
   c. Switch
   d. Telescoping guard

- e. Motor
- f. Blade
- g. Handle
- h. Upper guard
- i. Depth adjustment
- j. Tilt adjustment

4. a. safe
   - b. unsafe
   - c. safe
   - d. unsafe
   - e. unsafe
   - f. unsafe
   - g. unsafe

PART 3

5. a. Switch
   - b. Handle
   - c. Blade
   - d. Housing
   - e. Base
   - f. Blade screw
   - g. Guide knob

6. a. unsafe
   - b. unsafe
   - c. unsafe
   - d. safe
   - e. unsafe
   - f. unsafe

g. unsafe

h. safe

i. unsafe

j. unsafe

k. unsafe

PART 4

7. a. Housing

b. Switch

c. Handle

d. Chuck wrench

e. Cooling vents

f. Switch lock

g. Geared key chuck

8. a. safe

b. safe

c. unsafe

d. safe

e. safe

f. safe

g. unsafe

h. safe

i. unsafe

PART 5

9. a. Collet chuck

b. Base

c. Switch

- d. Housing
- e. Guide knobs
- f. Depth lock
- g. Depth adjustment

10. a. safe
    - b. safe
    - c. safe
    - d. unsafe
    - e. safe
    - f. safe
    - g. safe

PART 6

11. a. Dust bag
    - b. Housing
    - c. Switch
    - d. Handle
    - e. Belt
    - f. Front knob
    - g. Switch lock
    - h. Belt aligning adjustment
12. a. safe
    - b. unsafe
    - c. safe
    - d. unsafe
    - e. unsafe
    - f. unsafe
    - g. safe

h. unsafe

i. unsafe

PART 7

13. a. Pad

    b. Switch

    c. Paper clamps

    d. Handle

    e. Housing

    f. Switch lock

    g. Front knob

14. a. safe

    b. safe

    c. unsafe

    d. safe

    e. unsafe

    f. unsafe

    g. safe

PART 8

15. a. Fence

    b. Chip deflector

    c. Depth adjustment

    d. Switch

    e. Handle

    f. Housing

16. a. safe
    b. unsafe
    c. unsafe
    d. safe
    e. safe
    f. safe
    g. unsafe

17. Evaluated to the satisfaction of the instructor.

UNIT VIII

STATIONARY POWER TOOLS

UNIT OBJECTIVE

After completing this unit, the student will be able to identify terms and parts of stationary equipment and point out the correct safety rules to be followed when using them. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match the terms associated to stationary power tools to the correct definition.
2. Select the correct general safety rules to be followed when using stationary power tools.
3. Identify the parts of the disc sander.
4. Select the correct safety rules for the disc sander.
5. Identify the parts of the air compressor.
6. Select the correct safety rules for the air compressor.
7. Identify the parts of the grinder.
8. Select the correct safety rules for the grinder.
9. Identify the parts of the drill press.
10. Select the correct safety rules for the drill press.
11. Identify the parts of the table saw.
12. Select the correct safety rules for the table saw.
13. Identify the parts of the radial arm saw.
14. Select the correct safety rules for the radial arm saw.
15. Identify the parts of the jointer.

16. Select the correct safety rules for the jointer.
17. Identify the parts of the bandsaw.
18. Select the correct safety rules for the bandsaw.
19. Identify the parts of the power miter box.
20. Select the correct safety rules for the power miter box.
21. Demonstrate the ability to:
    a. Drill holes to location using the drill press.
    b. Square a board using the table saw.
    c. Rip a board to width using the table saw.
    d. Cut a board to length using the radial arm saw.

UNIT VIII

STATIONARY POWER TOOLS

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide student with objective sheet.

  B. Provide student with information and job sheets.

  C. Make transparencies.

  D. Discuss unit and specific objectives.

  E. Discuss information and job sheets.

  F. Show students each power tool.

  G. Demonstrate the use of power tools.

  H. Have students complete job sheets.

  I. Give test.

II. Student:

  A. Read objective sheet.

  B. Study information sheet.

  C. Complete job sheets.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

    1. Information Sheet #1--Stationary Power Tool Terminology and Safety

    2. Information Sheet #2--The Disc Sander

    3. Information Sheet #3--The Air Compressor

4. Information Sheet #4--The Grinder
5. Information Sheet #5--The Drill Press
6. Information Sheet #6--The Table Saw
7. Information Sheet #7--The Radial Arm Saw
8. Information Sheet #8--The Jointer
9. Information Sheet #9--The Bandsaw
10. Information Sheet #10--The Power Miter Box

C. Transparency masters

1. VIII-TM-1--Disc Sander
2. VIII-TM-2--Air Compressor
3. VIII-TM-3--Grinder
4. VIII-TM-4--Drill Press
5. VIII-TM-5--Table Saw
6. VIII-TM-6--Radial Arm Saw
7. VIII-TM-7--Jointer
8. VIII-TM-8--Bandsaw
9. VIII-TM-9--Power Miter Box

D. Job sheets

1. Job Sheet #1--Drill Holes to Location Using the Drill Press
2. Job Sheet #2--Square a Board Using the Table Saw
3. Job Sheet #3--Rip a Board to Width Using the Table Saw
4. Job Sheet #4--Cut a Board to Length Using the Radial Arm Saw

E. Test

F. Answers to test

II. References:

A. Hoerner, Thomas A. Power Tool Safety and Operation. St. Paul, Minnesota: Hobar Publications, 1973.

B. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Goodheart-Wilcox Company Inc., 1976.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #1--STATIONARY POWER TOOL TERMINOLOGY AND SAFETY

I. Terms and definitions

   A. Stationary--Heavy machines that are table mounted or rest on the floor

   B. Caution zone--The yellow-striped area around a power tool where students must have on their safety glasses and be aware of what is going on

   C. Safety zone--The orange-striped area around a machine where the students must be either operating or helping with the operation of a machine

   D. Danger zone--The red-striped area around a rotating cutter, blade, or bit that no one should place their hands, fingers, or arms

   E. Margin of safety--The area around a rotating blade, bit, or cutter where you should never place your hands, fingers, or arms

II. General safety rules

   A. Wear proper clothing.

   B. Wear safety glasses or shields.

   C. Have permission to operate equipment.

   D. Keep equipment tables clean and free of chips and tools.

   E. Observe the rules concerning safety zones.

   F. Do not go past any margin of safety.

   G. Keep the floor free of wood scraps and trash.

   H. Do not use boards with nails in them.

   I. Report any defective equipment to the instructor.

   J. Take care of machine maintenance regularly.

K. Make all adjustments with the power unplugged,

L. Be sure switch is on "off" when plugging in equipment.

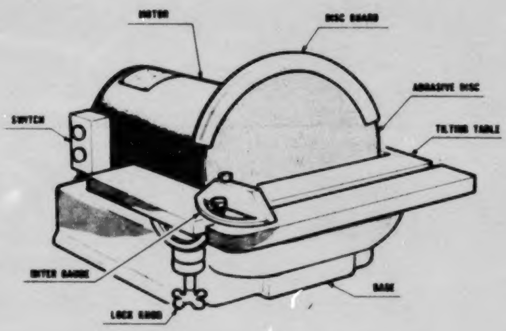
UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #2--THE DISC SANDER

III. Parts of the disc sander

A. Motor
B. Abrasive disc
C. Miter gauge
D. Tilting table
E. Switch
F. Lock knob
G. Base
H. Disc guard


MOTOR
DISC GUARD
ABRASIVE DISC
SWITCH
TILTING TABLE
MITER GAUGE
BASE
LOCK KNOB

IV. Safety rules for a disc sander

A. Keep the table 1/8 inch from the disc.

B. Make all adjustments with the power off.

C. Keep the disc guard in place at all times.

D. Place boards on the table where the disc cuts downward.

E. Allow the motor to gain full speed before applying pressure.

F. Move the board back and forth to reduce heat.

G. Move the board away from the disc before turning off the sander.

H. Do not leave the sander until the disc stops.

I. Do not operate the sander with the paper loose.

J. Keep fingers away from the disc.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #3--THE AIR COMPRESSOR

V. Parts of an air compressor

  A. Tank

  B. Pressure gauge

  C. Motor

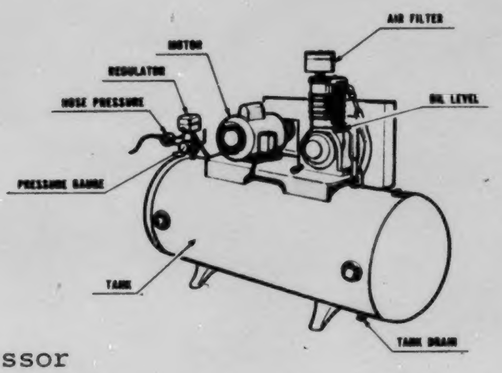
  D. Pressure regulator

  E. Hose

  F. Air filter

  G. Oil level for compressor

  H. Tank drain


AIR FILTER
MOTOR
REGULATOR
HOSE PRESSURE
OIL LEVEL
PRESSURE GAUGE
TANK
TANK DRAIN

VI. Safety for an air compressor

  A. Keep the guard on the pulleys.

  B. Keep air filter changed.

  C. Make sure oil is at proper level.

  D. Do not spray compressed air in anyone's face.

  E. Do not lay lumber on the air hoses.

  F. Drain the tank often.

  (NOTE: Compressed air forms water in the tank.)

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #4--THE GRINDER

VII. Parts of a grinder

A. Motor

B. Shield

C. Wheel guard

D. Wheel

E. Plane blade grinding attachment

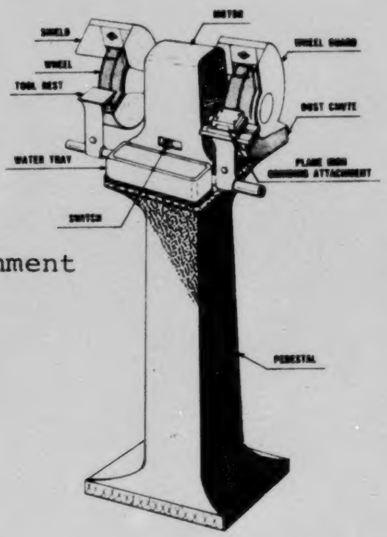
F. Pedestal

G. Dust chute

H. Switch

I. Tool rest

J. Water tray


SHIELD
WHEEL
TOOL REST
WATER TRAY
SWITCH
MOTOR
WHEEL GUARD
DUST CHUTE
PLANE IRON GRINDING ATTACHMENT
PEDESTAL

VIII. Safety for a grinder

A. Adjust the tool rest so that is no more than 1/8 inch from the wheel.

B. Do not grind on the side of the wheel.

C. Stand to one side when turning on the grinder.

D. Allow the motor to gain full speed before grinding.

E. Keep the tool moving side-to-side to prevent overheating.

F. Do not operate the grinder without the wheel guard.

G. Do not use a wheel that vibrates or that you think is cracked.

H. Keep your fingers away from the grinding wheel.

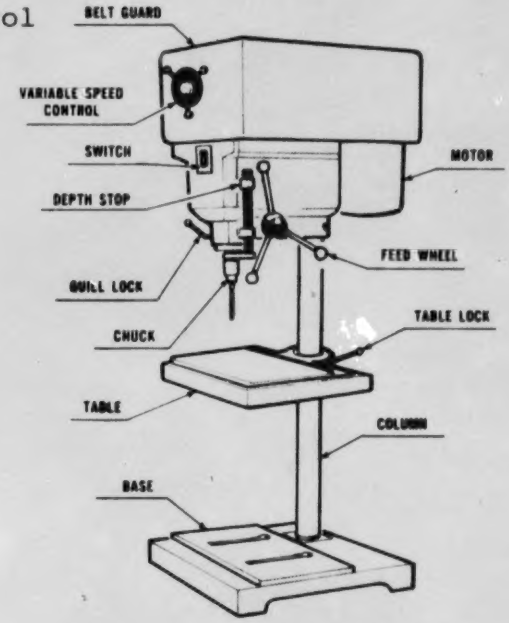
UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #5--THE DRILL PRESS

IX. Parts of a drill press

- A. Belt guard
- B. Variable speed control
- C. Switch
- D. Depth stop
- E. Feed wheel
- F. Quill lock
- G. Chuck
- H. Table
- I. Base
- J. Motor
- K. Column
- L. Table lock


BELT GUARD
VARIABLE SPEED CONTROL
SWITCH
MOTOR
DEPTH STOP
FEED WHEEL
QUILL LOCK
CHUCK
TABLE LOCK
TABLE
COLUMN
BASE

X. Safety for a drill press

- A. Use the proper size drill bit.
- B. Have power off when making adjustments.
- C. Have material clamped securely.
- D. Do not drill into the table.

  (NOTE: A wood block under the material being drilled will prevent this.)
- E. Use the proper RPM when drilling.

  (NOTE: Refer to a feeds and speeds chart.)
- F. Do not center punch or hammer on the table.
- G. Keep hair away from the rotating chuck.

H. Do not wear gloves or loose clothing.

I. Remove the chuck key immediately after tightening a drill bit.

J. Keep the bit tightened.

K. Keep the long end of the material being drilled to your left.

L. Avoid reaching around the chuck when rotating.

M. Back the drill out of the hole several times to remove chips while drilling.

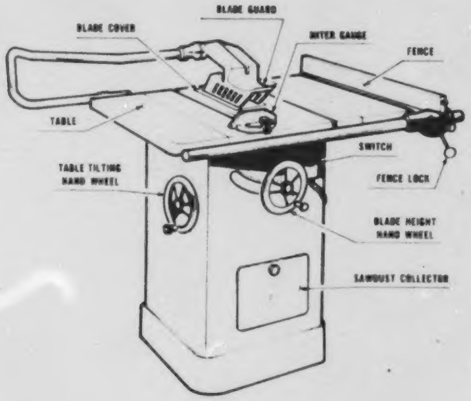
UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #6--THE TABLE SAW

XI. Parts of a table saw

- A. Table
- B. Fence
- C. Miter gauge
- D. Blade guard
- E. Blade cover
- F. Fence lock
- G. Switch
- H. Sawdust collector
- I. Blade-height handwheel
- J. Table-tilting handwheel


BLADE GUARD
BLADE COVER
MITER GAUGE
FENCE
TABLE
SWITCH
TABLE TILTING HAND WHEEL
FENCE LOCK
BLADE HEIGHT HAND WHEEL
SAWDUST COLLECTOR

XII. Safety for the table saw

- A. Make sure power is disconnected before making adjustments.
- B. Be sure blade is properly installed and tight.

  (NOTE: Do not overtighten blade.)
- C. Have covers and guards in place when sawing.
- D. Keep your body, hands, and fingers out of the line of cut and away from the blade.
- E. Check all locks on adjustments before cutting.
- F. Keep the table and the floor around the saw free of scraps.
- G. Use a "push" stick for cutting narrow pieces.
- H. Do not saw without using the fence or miter gauge.
- I. Do not use the fence for a gauge when cutting short pieces.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #7--THE RADIAL ARM SAW

XIII. Parts of a radial arm saw

A. Base

B. Fence

C. Column

D. Blade guards

E. Switch

F. Motor

G. Handle

H. Kickback guard

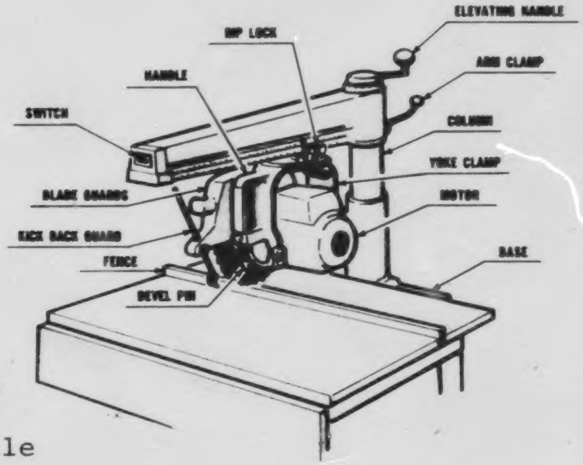
I. Elevating handle

J. Arm clamp

K. Bevel pin

L. Rip lock

M. Yoke clamp


ELEVATING HANDLE
RIP LOCK
ARM CLAMP
HANDLE
SWITCH
COLUMN
YOKE CLAMP
BLADE GUARDS
MOTOR
KICK BACK GUARD
FENCE
BASE
BEVEL PIN

XIV. Safety for a radial arm saw

A. Be sure locks and clamps are tight before turning on the motor.

B. Be sure stock is held firmly against the fence.

C. Support long ends of boards when cutting.

D. Keep the guard and antikickback device positioned correctly.

E. Return the saw to the rear of the arm when a cut is finished.

F. Keep your arms and head away from the path of the saw blade.

G. Be sure the motor is turned off and the blade has stopped before making adjustments.

H. Keep the table free of sawdust and scraps.

I. Do not leave the saw while it is running.

J. Pull the saw slowly toward you when cutting across the board.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #8--THE JOINTER

XV. Parts of a jointer

A. Rear outfeed table

B. Front infeed table

C. Fence

D. Rear table adjusting handwheel

E. Base

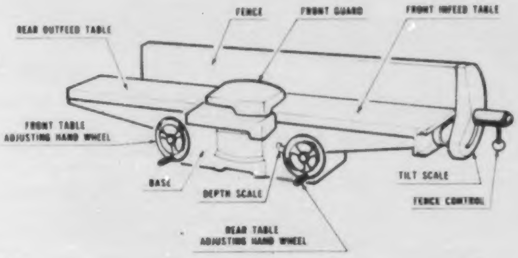
F. Front guard

G. Front table adjusting handwheel

H. Depth scale

I. Tilt scale

J. Fence control


REAR OUTFEED TABLE
FENCE
FRONT GUARD
FRONT INFEED TABLE
FRONT TABLE ADJUSTING HAND WHEEL
BASE
DEPTH SCALE
TILT SCALE
FENCE CONTROL
REAR TABLE ADJUSTING HAND WHEEL

XVI. Safety for a jointer

A. Be sure the front guard is in place and working correctly.

B. Do not try to take too heavy a cut.

(NOTE: The depth for jointing on the edge is 1/8 inch and 1/16 inch for a flat surface.)

C. Do not feed the wood against the grain.

D. Do not get your hands near the cutter even if the guard is in place.

E. Disconnect the power to make adjustments.

F. Keep the cutter knives sharp and free from nicks.

G. Do not use wood with nails, paint, or knots.

H. Use a push block when jointing thin wood.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #9--THE BANDSAW

XVII. Parts of the bandsaw

A. Upper wheel guard

B. Lamp

C. Blade guide

D. Table

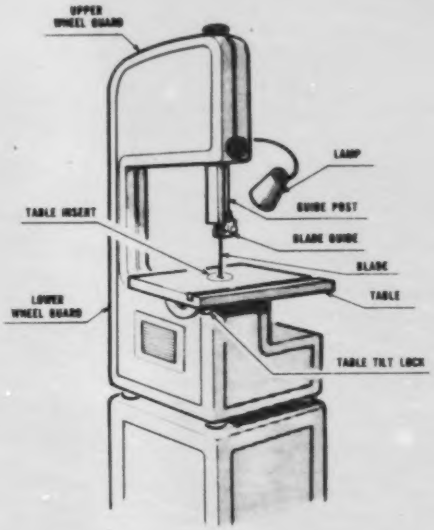
E. Rear guard

F. Table tilt lock

G. Blade

H. Table insert

I. Guide post


UPPER WHEEL GUARD
LAMP
GUIDE POST
TABLE INSERT
BLADE GUIDE
BLADE
TABLE
LOWER WHEEL GUARD
TABLE TILT LOCK

XVIII. Safety for bandsaw

A. Keep floor and table free of scraps.

B. Use a push block when sawing small pieces.

C. Keep wheel guards in place.

D. Make any adjustments with the power disconnected.

E. Keep hands away from the blade.

F. Do not reach around the blade.

G. Do not leave the saw until it has stopped.

UNIT VIII

STATIONARY POWER TOOLS

INFORMATION SHEET #10--THE POWER MITER BOX

XIX. Parts of the power miter box

A. Table

B. Miter gauge

C. Swivel arm

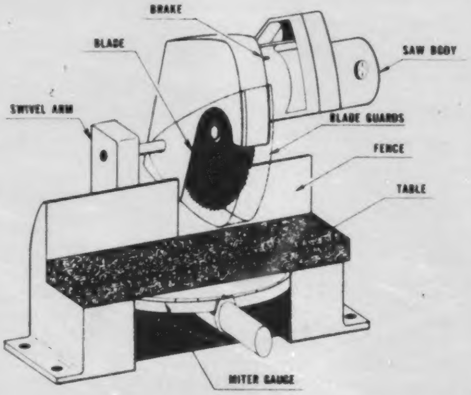
D. Fence

E. Blade guards

F. Saw

G. Brake

H. Blade


BRAKE
BLADE
SAW BODY
SWIVEL ARM
BLADE GUARDS
FENCE
TABLE
MITER GAUGE

XX. Safety for the power miter box

A. Be sure all blade guards are in place and working.

B. Hold the stock down and against the fence.

C. Move the saw slowly into the stock.

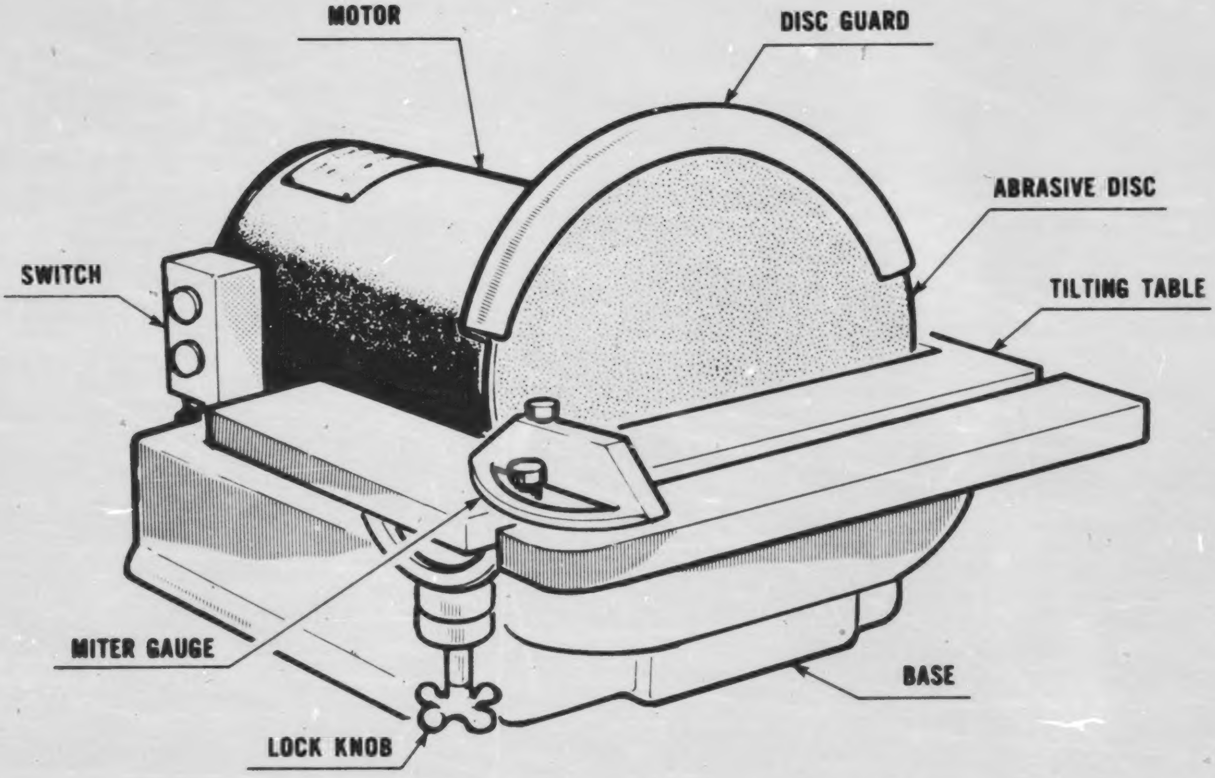
D. Keep your fingers and hands away from the blade.

E. Raise the saw to its upper position slowly after the cut is finished.

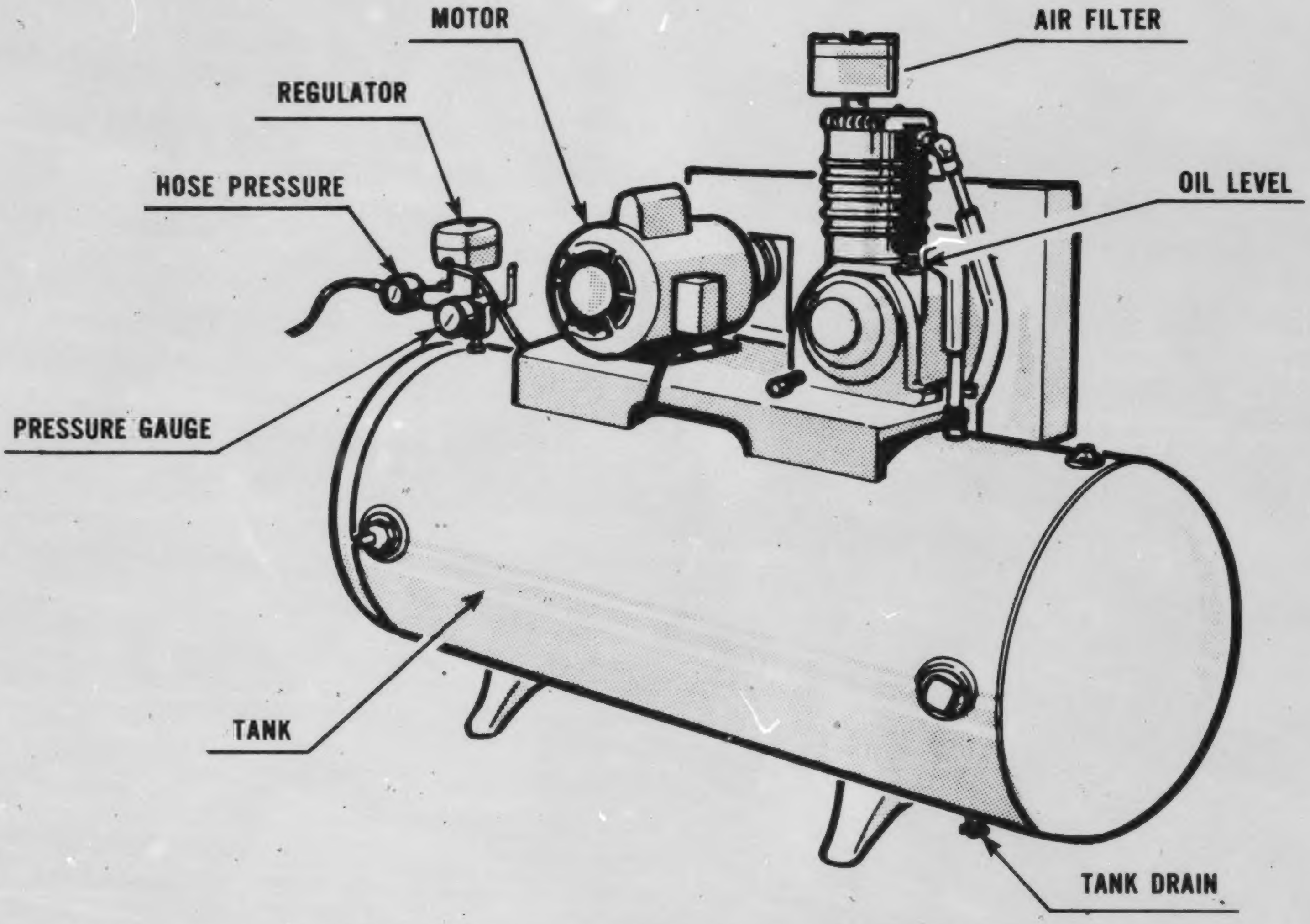
F. Make sure the motor is turned off and blade has stopped before making adjustments.

G. Do not leave the saw while it is running.

DISC SANDER


MOTOR
DISC GUARD
ABRASIVE DISC
SWITCH
TILTING TABLE
MITER GAUGE
BASE
LOCK KNOB

AIR COMPRESSOR


MOTOR
AIR FILTER
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HOSE PRESSURE
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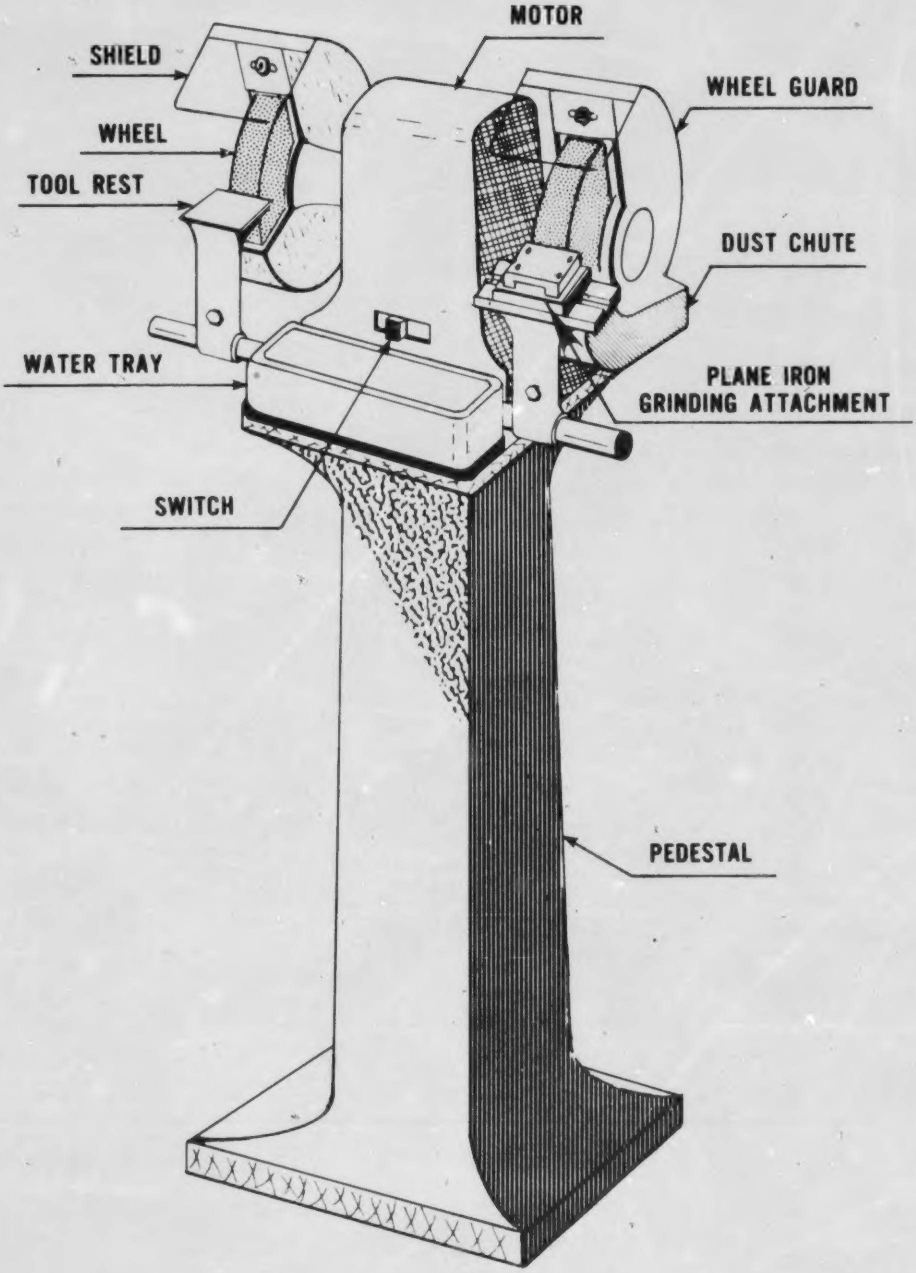
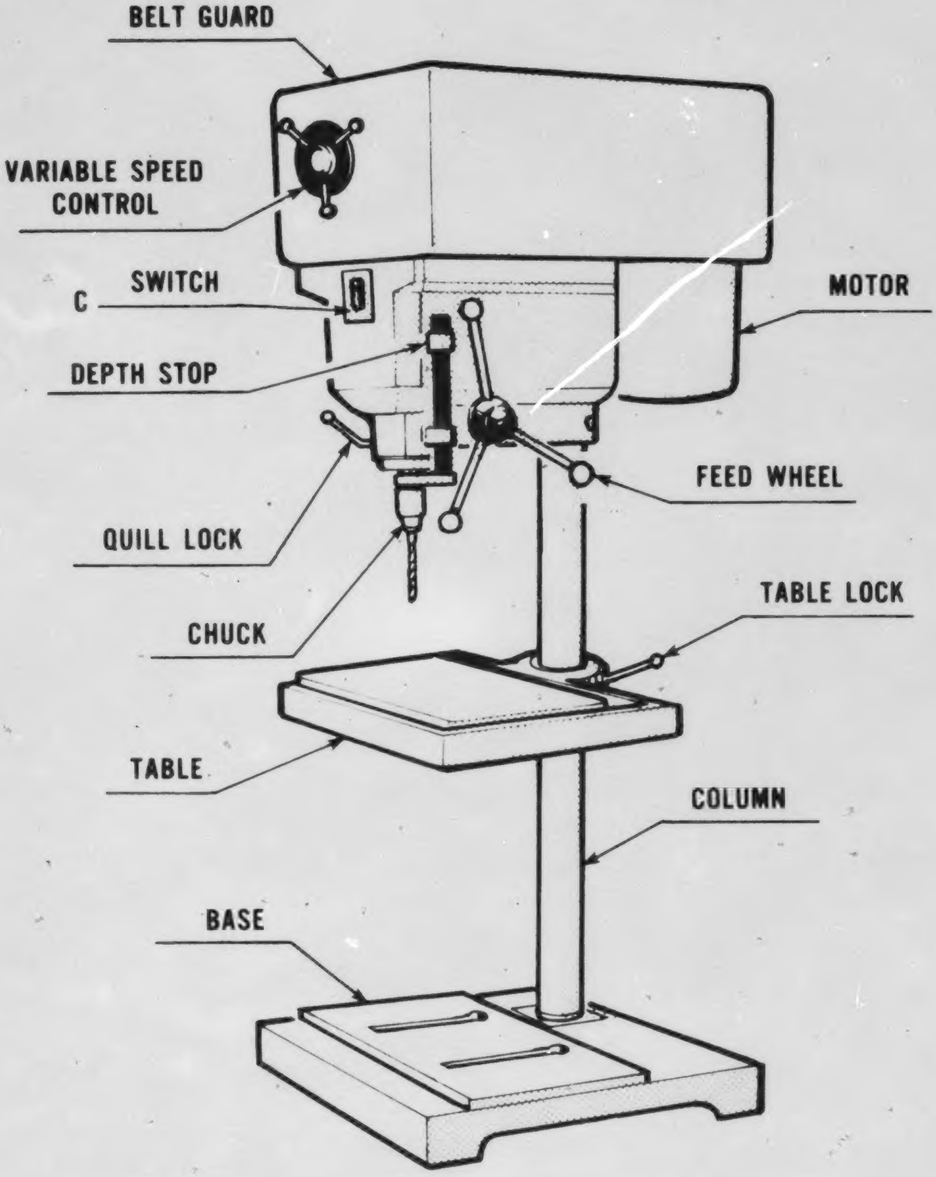
TANK
TANK DRAIN

GRINDER


MOTOR
SHIELD
WHEEL GUARD
WHEEL
TOOL REST
DUST CHUTE
WATER TRAY
PLANE IRON
GRINDING ATTACHMENT
SWITCH
PEDESTAL

DRILL PRESS


BELT GUARD
VARIABLE SPEED CONTROL
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DEPTH STOP
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QUILL LOCK
TABLE LOCK
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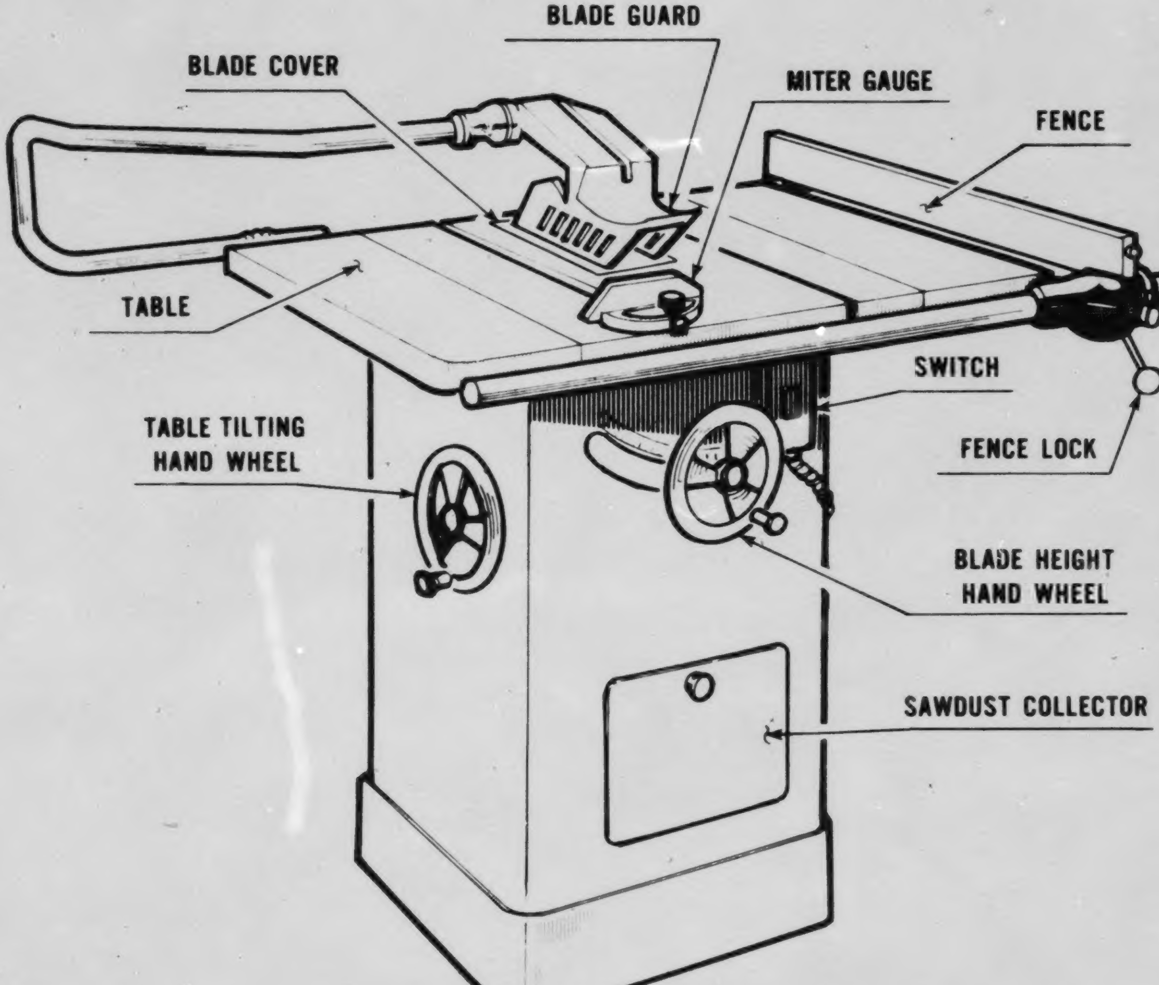
COLUMN
BASE

TABLE SAW


BLADE GUARD
BLADE COVER
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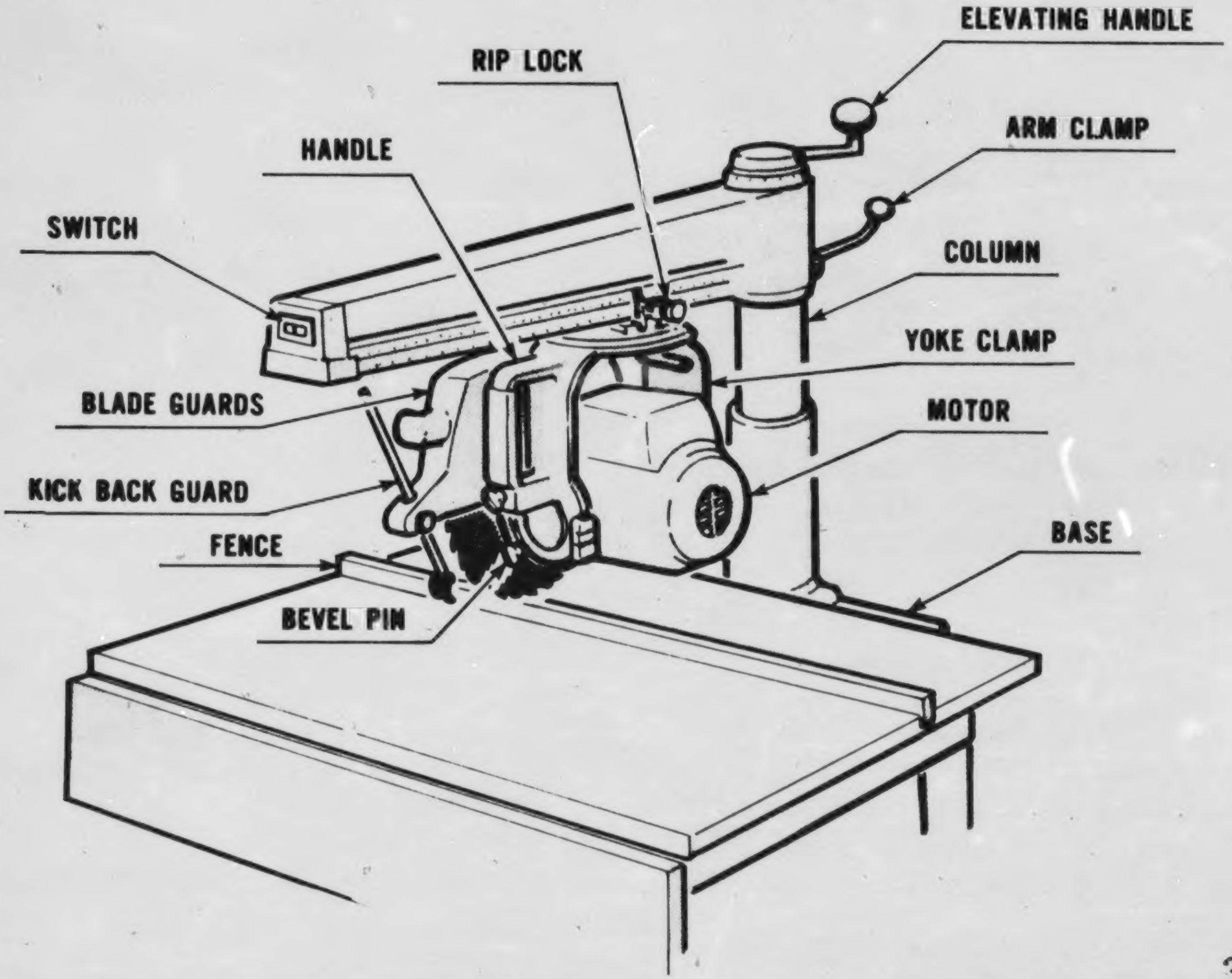
FENCE LOCK
BLADE HEIGHT HAND WHEEL
SAWDUST COLLECTOR

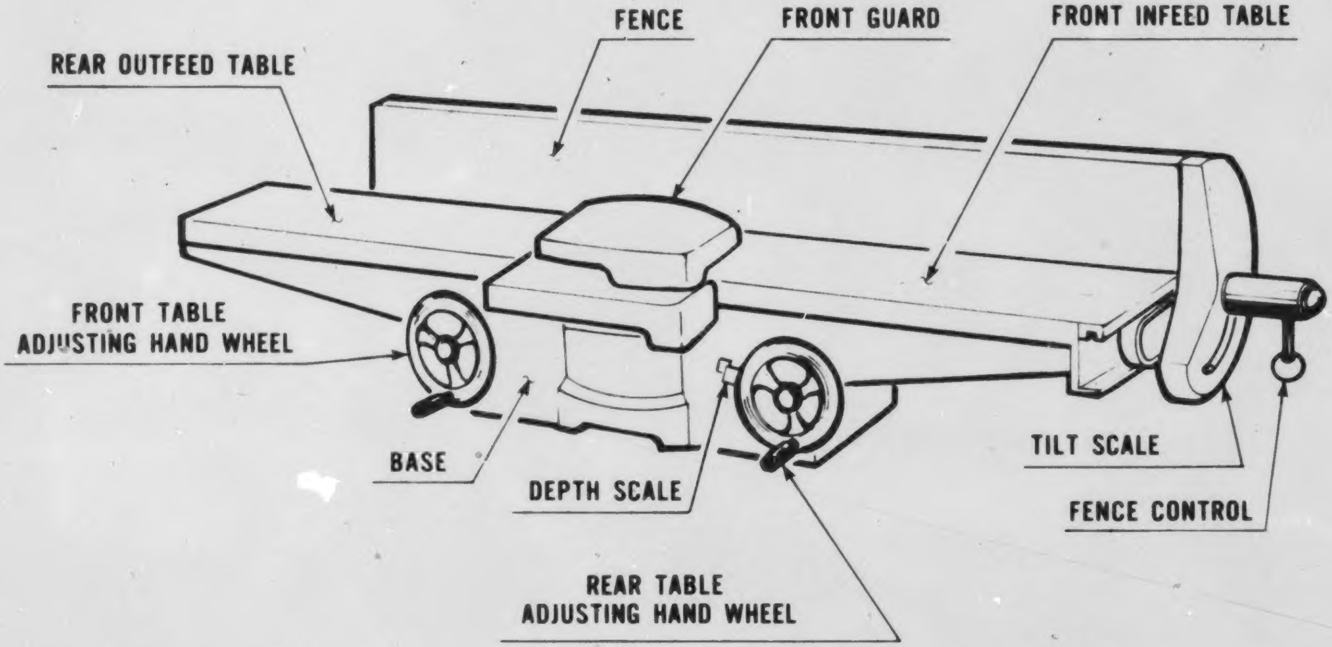
RADIAL ARM SAW


ELEVATING HANDLE
RIP LOCK
ARM CLAMP
HANDLE
SWITCH
COLUMN
YOKE CLAMP
BLADE GUARDS
MOTOR
KICK BACK GUARD
BASE
FENCE
BEVEL PIN

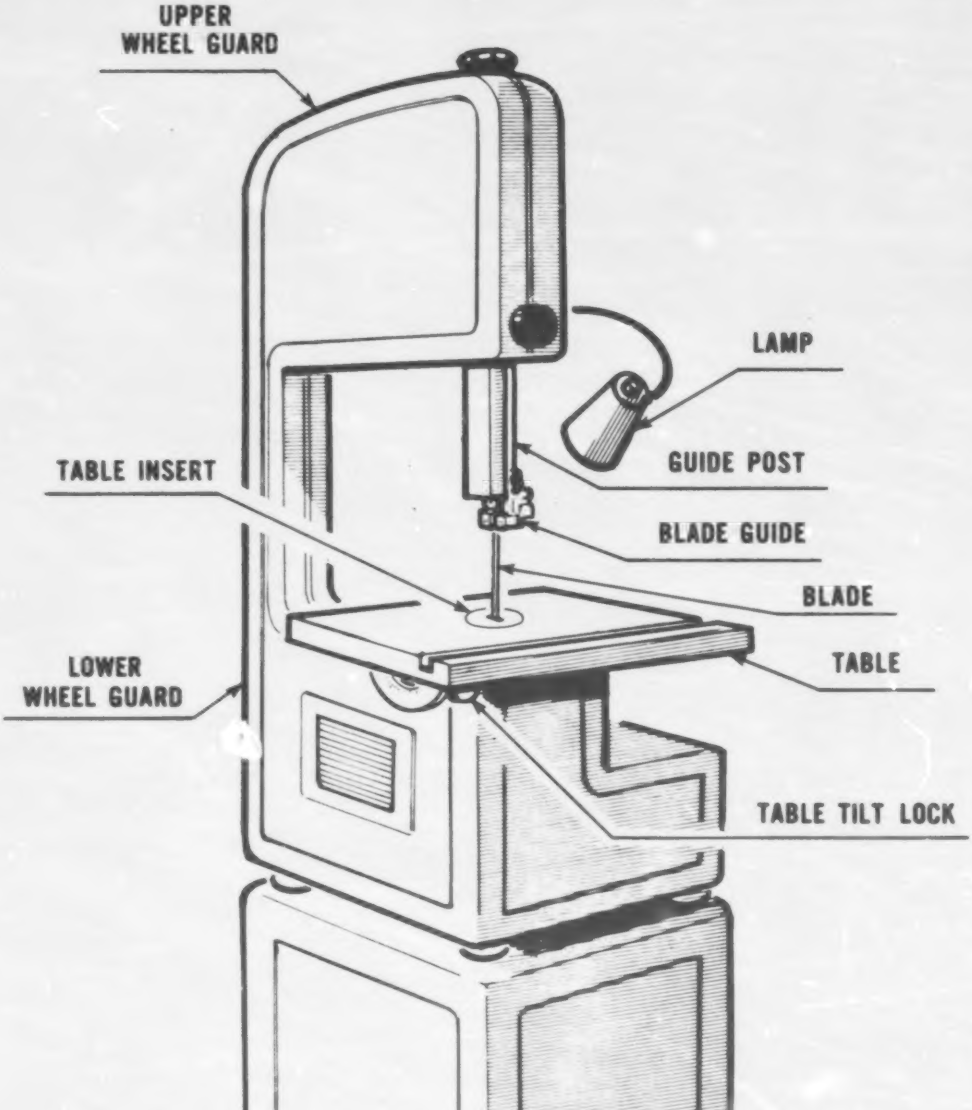
TM-6

VIII-37

JOINTER


FENCE
FRONT GUARD
FRONT INFEED TABLE
REAR OUTFEED TABLE
FRONT TABLE ADJUSTING HAND WHEEL
BASE
DEPTH SCALE
TILT SCALE
FENCE CONTROL
REAR TABLE ADJUSTING HAND WHEEL

BAND SAW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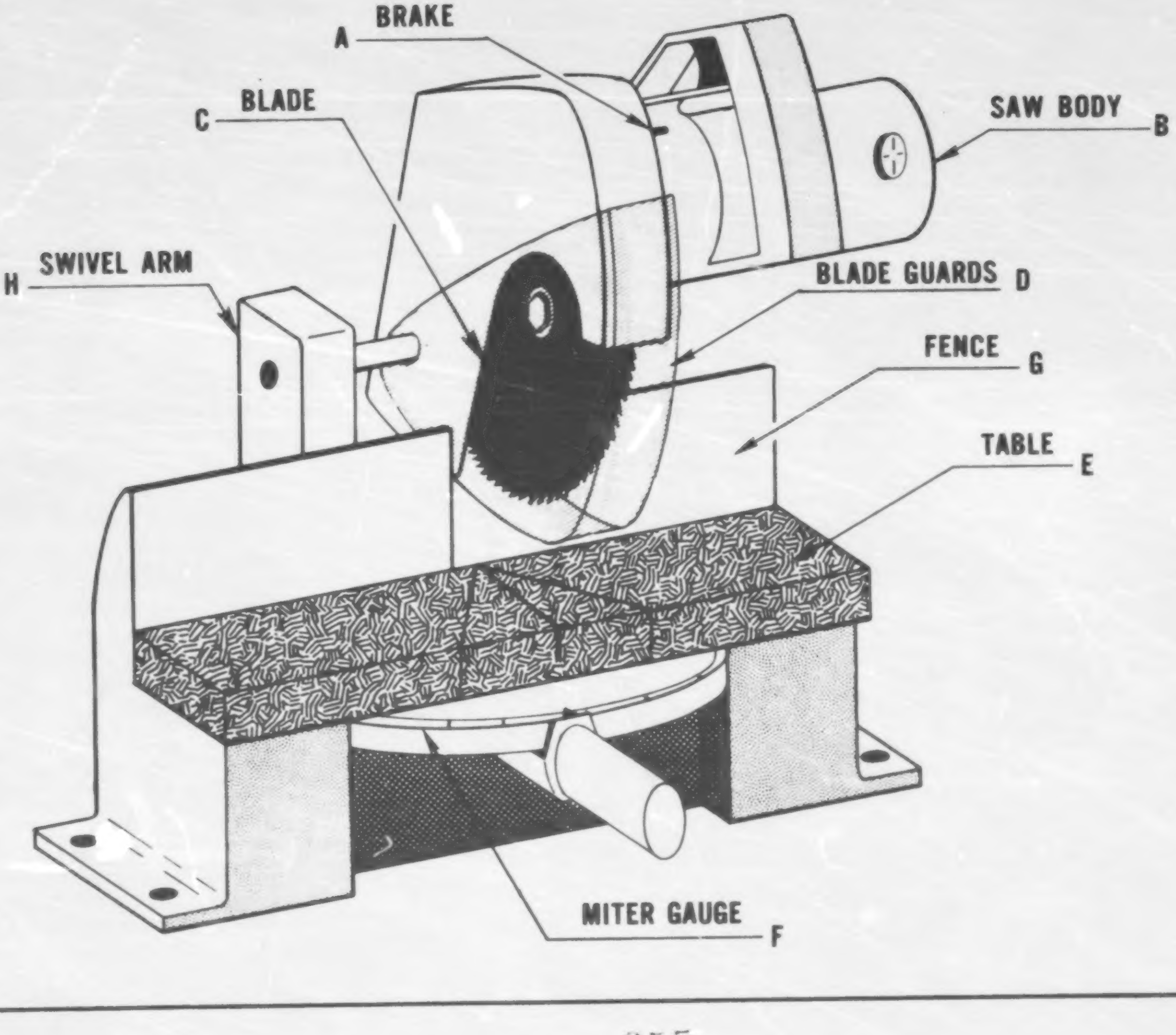
LAMP
GUIDE POST
TABLE INSERT
BLADE GUIDE
BLADE
TABLE
LOWER WHEEL GUARD
TABLE TILT LOCK

POWER MITER BOX


A BRAKE
C BLADE
SAW BODY B
H SWIVEL ARM
BLADE GUARDS D
FENCE G
TABLE E
MITER GAUGE F

UNIT VIII

STATIONARY POWER TOOLS

JOB SHEET #1--DRILL HOLES TO LOCATION USING THE DRILL PRESS

I. Tools and materials

   A. Drill press

   B. Scrap board (approximately 1" x 4" x 10")

   C. Drill bit (1/4" to 1/2")

   D. Pencil

   E. Ruler

   F. Safety glasses

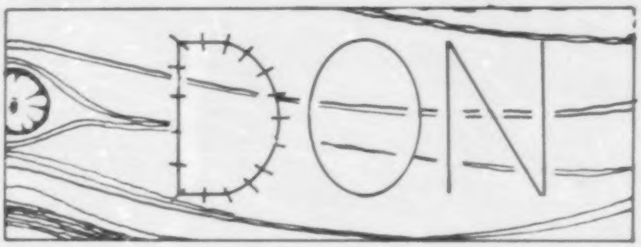
II. Procedure

   A. Put on safety glasses.

   B. Print your first name neatly on the board.

   C. Mark a cross mark every 1/2 inch along the line forming each letter.

   Example:



   D. Tighten the drill bit securely in the drill press chuck.

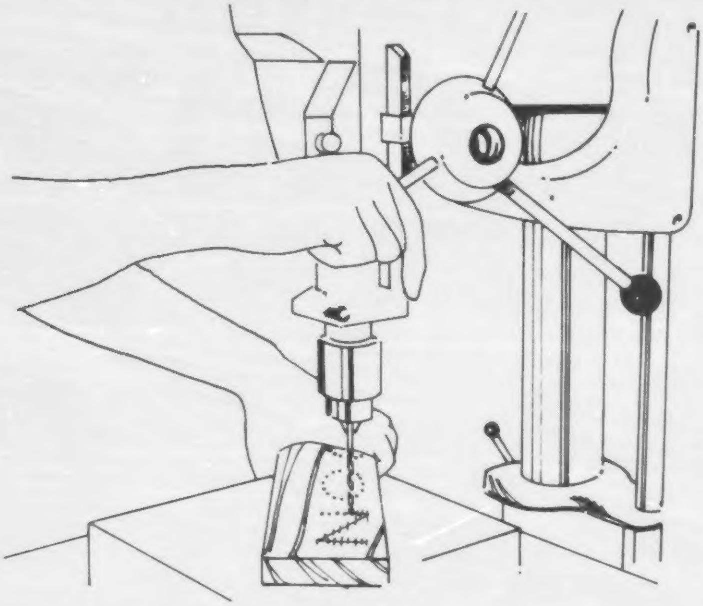
   E. Align the drill press table so the bit will go through the center hole when drilling.

   F. Check with a wall chart or your instructor for the correct RPM.

G. Turn on the drill press.

H. Drill through each cross mark on the board.

(CAUTION: Hold the board securely but keep the correct margin of safety from the drill bit.)



I. Continue the drilling procedure until all holes have been drilled.

J. Turn off drill press.

K. Clean work area.

UNIT VIII

STATIONARY POWER TOOLS

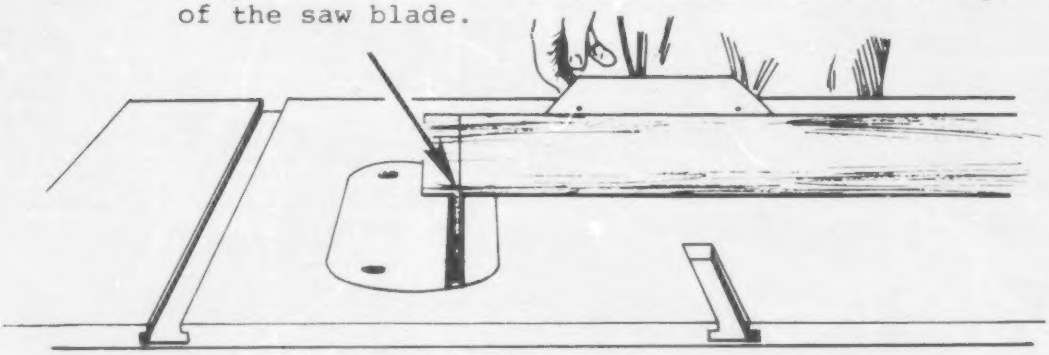
JOB SHEET #2--SQUARE A BOARD USING THE TABLE SAW

I. Tools and materials

- A. Safety glasses
- B. Table saw
- C. Scrap lumber (approximately 1" x 6" x 18")
- D. Pencil
- E. Folding rule
- F. Try square

II. Procedure

- A. Put on safety glasses.
- B. Mark the board 1 inch from one end.
- C. Draw a line square across the board using the try square.
- D. Place the board on the saw against the fence of the miter attachment.
- E. Move the ripping fence to one side or remove it.
- F. Align the line of cut on the board with the edge of the saw blade.



- G. Move the board and miter attachment back from the blade.
- H. Turn the saw on.

I. Push the miter attachment and board forward into the blade.

(CAUTION: Keep your correct margin of safety around the blade.)

J. Make sure the blade is cutting to the correct side of the line.

K. Cut all the way across the board.

L. Pull the board and miter attachment back.

M. Turn the saw off.

N. Check the board for squareness with the try square.

O. Repeat this procedure until it becomes easily done.

P. Clean up work area.

UNIT VIII

STATIONARY POWER TOOLS

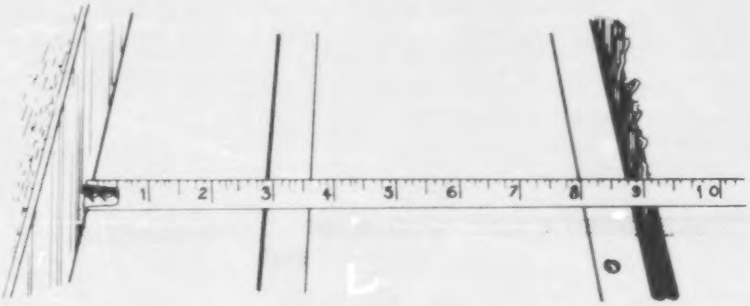
JOB SHEET #3--RIP A BOARD TO WIDTH USING THE TABLE SAW

I. Tools and materials

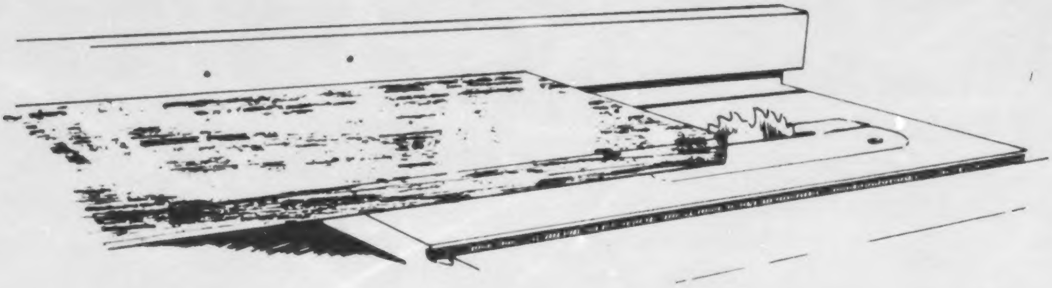
- A. Safety glasses
- B. Table saw
- C. Scrap lumber (approximately 1" x 10" 2')
- D. Tape measure or folding rule
- E. Pushstick

II. Procedure

- A. Put on safety glasses.
- B. Move the fence to the 9 inch mark on the scale and lock in place.
- C. Check the distance from the fence to the closet tooth on the blade with the ruler.



- D. Remove the miter attachment and clear the table.
- E. Start the saw.
- F. Lay the board on the edge of the table against the fence.

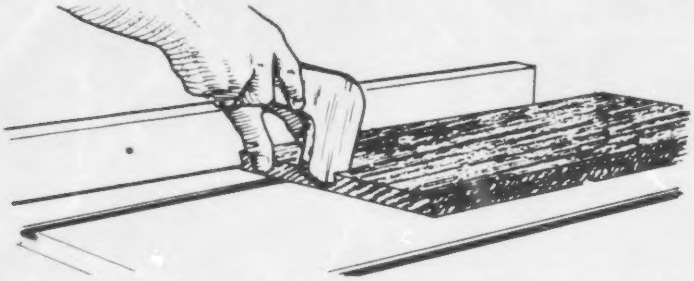


G. Move the board into the saw blade.

(NOTE: Keep the board against the fence.)

H. Use the pushstick as soon as your hand reaches the edge of the table.

(CAUTION: Keep the correct margin of safety.)



I. Push the board completely through the blade until it clears.

J. Turn the saw off.

K. Clean the work area.

UNIT VIII

STATIONARY POWER TOOLS

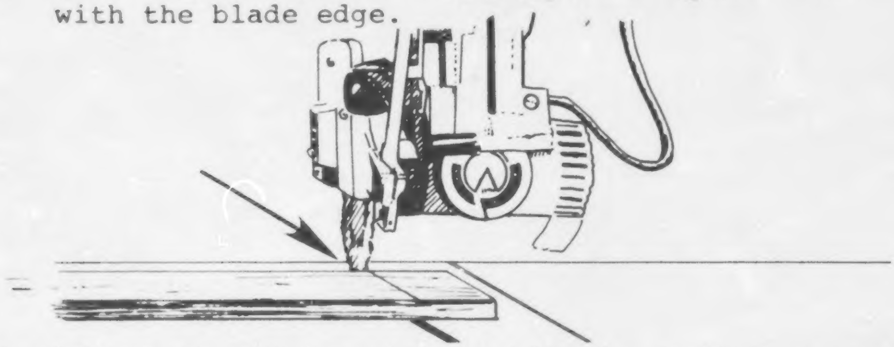
JOB SHEET #4--CUT A BOARD TO LENGTH USING THE RADIAL ARM SAW

I. Tools and materials

- A. Safety glasses
- B. Radial arm saw
- C. Scrap piece of lumber (approximately 1" x 6" x 2')
- D. Folding rule
- E. Pencil
- F. Try square

II. Procedure

- A. Put on safety glasses.
- B. Mark the board 18 inches from the end.
- C. Draw a line square across the board using the try square.
- D. Place the board on the table against the fence.
- E. Move the saw forward and align the square line with the blade edge.



- F. Adjust the blade height until the teeth just touch the table top.
- G. Check all adjustment locks for tightness.
- H. Adjust the blade height until the teeth just touch the table top.

I. Move the saw to the rear of the arm.

J. Check all adjustment locks for tightness.

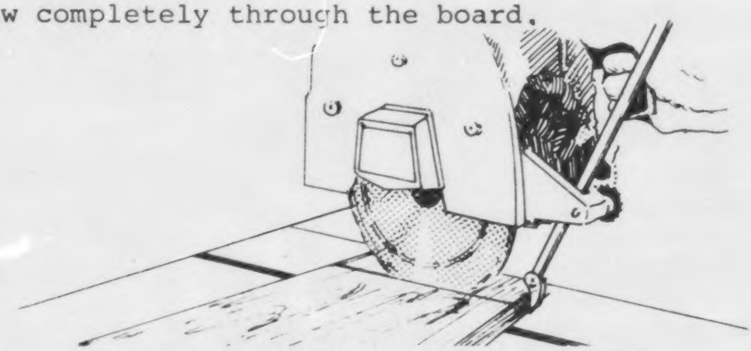
K. Turn on the saw.

L. Hold the board against the fence.

M. Move the saw slowly into the board.

(NOTE: Stand slightly to the left of the line of cut.)

N. Saw completely through the board.



O. Return the saw to the rear of the table.

P. Turn off the saw.

Q. Clean the work area.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 1

1. Match the terms on the right with the correct definition.

_____ a. Heavy machines that are table-mounted or rest on the floor

_____ b. The yellow-striped area around a power tool where students must have on their safety glasses and be aware of what is going on

_____ c. The orange-striped area around a machine where students must be either operating or helping with the operation of the machine

_____ d. The red-striped area around a rotating cutter, blade or bit that no one should place their hands, fingers, or arms

_____ e. The area around a rotating blade, bit, or cutter where you should never place your hands, fingers, or arms

1. Safety zone
2. Caution zone
3. Stationary
4. Margin of safety
5. Danger zone

2. Select the correct general safety rules for using stationary power tools by placing a "✓" in front of each correct statement.

_____ a. Wear loose clothing.

_____ b. Wear safety glasses or shields.

_____ c. Have permission to operate equipment.

_____ d. Keep equipment tables clean and free of chips and tools.

_____ e. Color coded areas are for looks.

_____ f. Do not go past any margin of safety.

_____ g. Keep the floor free of wood scraps and trash.

_____ h. Most nails are soft and may be sawed through.

_____ i. Use defective equipment carefully.

_____ j. Leave machine maintenance up to the custodian.

_____ k. Make adjustments with the power unplugged.

_____ l. Be sure the switch is off when plugging in equipment.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 2

3. Label the parts of the disc sander.

Base

Disc guard

Abrasive disc

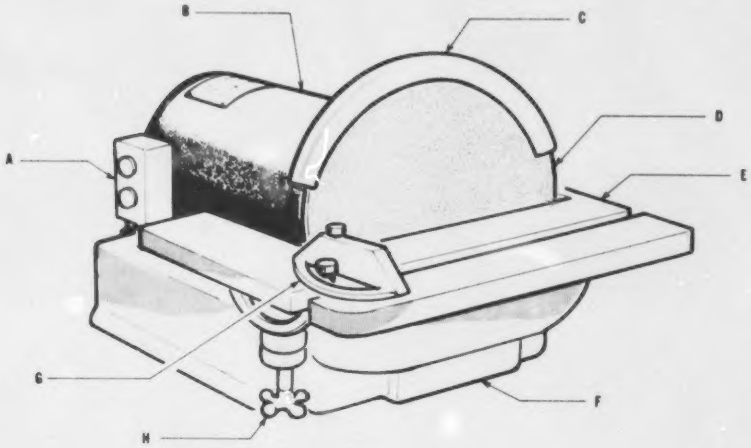
Miter gauge

Tilting table

Switch

Lock knob

Motor



4. Select the correct safety rules for the disc sander by placing either safe or unsafe in each of the blanks below.

_____ a. Keep the table 1 inch from the disc.

_____ b. Make all adjustments with the power on.

_____ c. Keep the disc guard in place at all times.

_____ d. Place boards on the table where the disc cuts upward.

_____ e. Apply pressure before the motor gains full speed.

_____ f. Move the board back and forth to reduce heat.

_____ g. Move the stock away from the disc.

_____ h. Leave the sander only after the disc stops.

_____ i. The paper being loose will not affect the sanding.

_____ j. Keep fingers away from the disc.

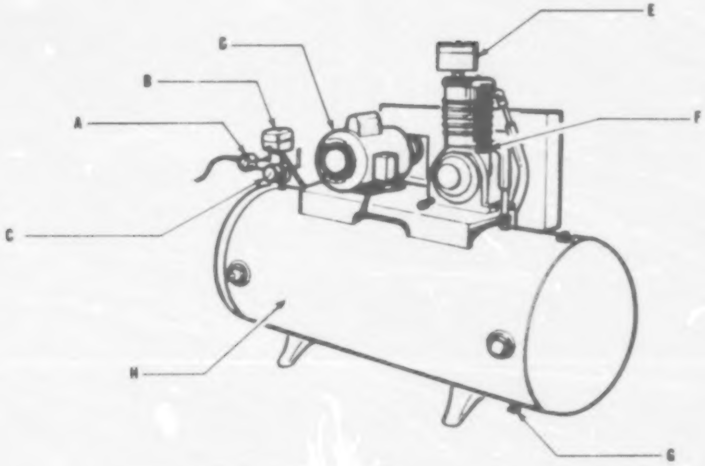
UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 3

5. Label the parts of the air compressor.

Tank	Hose pressure
Pressure gauge	Air filter
Motor	Oil level of compressor
Pressure regulator	Tank drain



6. Select the correct rules for the air compressor by placing either safe or unsafe in each of the blanks below.

_____ a. Remove the guard from the pulleys if it is noisy.

_____ b. Air filters never need changing.

_____ c. Make sure the oil level is correct.

_____ d. Spray compressed air in others' faces.

_____ e. Keep lumber off of air hoses.

_____ f. The tank never needs draining.

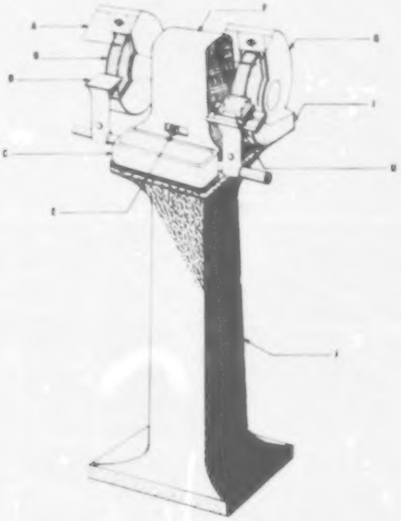
UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 4

7. Label the parts of the grinder.

Motor	Tool rest
Water tray	Pedestal
Switch	Plane blade grinding attachment
Shield	Wheel guard
Wheel	Dust chute



8. Select the correct safety rules for the grinder by placing either safe or unsafe in each of the blanks below.

_____ a. The tool rest should be no more than 1/8 inch from the wheel.

_____ b. You may grind on the side of the wheel.

_____ c. Stand directly in front of the grinder.

_____ d. Allow the motor to gain full speed before grinding.

_____ e. Hold the tool in one spot when grinding.

_____ f. Remove the wheel guard during grinding.

_____ g. Stop a grinding wheel when it vibrates.

_____ h. Keep your fingers away from the grinding wheel.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 5

9. Label the part of the drill press.

Chuck

Table

Table lock

Column

Belt guard

Variable speed control

Switch

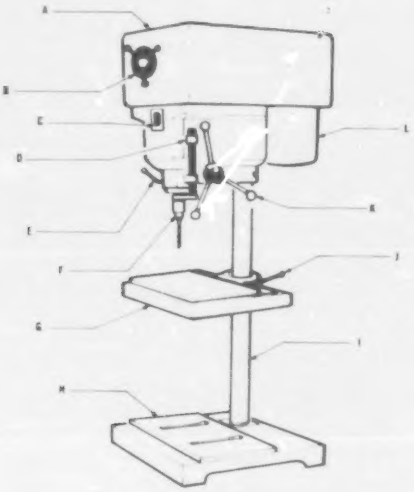
Feed wheel

Depth stop

Quill lock

Motor

Base



10. Select the correct safety rules for the drill press by placing either safe or unsafe in each of the blanks below.

_____ a. Use the proper size drill bit.

_____ b. Have power off when making adjustments.

_____ c. Have material clamped securely.

_____ d. Keep the drill bit away from the table.

_____ e. Use the same RPM for all drills.

_____ f. Center punch or hammer on a work bench, not the drill press table.

_____ g. Keep hair away from the rotating chuck.

_____ h. Keep gloves or loose clothing away from rotating parts.

_____ i. Remove the chuck key after use.

_____ j. Keep the bit tightened.

_____ k. Keep the long end of the material being drilled to your left.

_____ l. Stop the drill before you reach around the chuck.

_____ m. Back the drill out of the material several times while drilling.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 6

11. Label the parts of the table saw.

Table tilting handwheel

Sawdust collector

Fence lock

Table

Blade guard

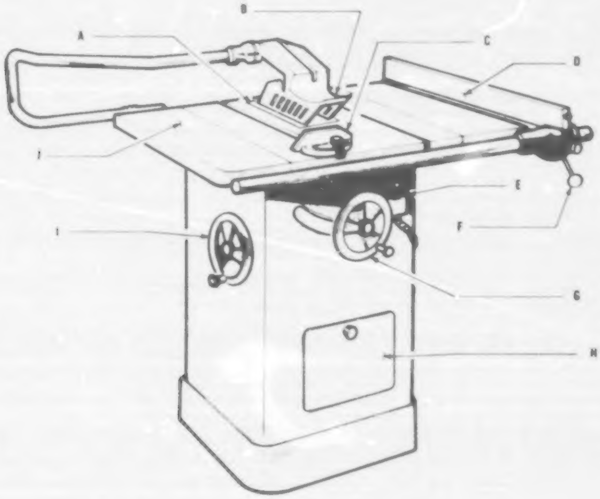
Fence

Blade height handwheel

Switch

Blade guard

Miter gauge



12. Select the correct safety rules for the table saw by placing either safe or unsafe in each of the blanks below.

_____ a. Leave the power on to make adjustments.

_____ b. Be sure the blade is properly installed and tight.

_____ c. Remove any covers and guards you think are in the way.

_____ d. Keep your fingers, hands, and body out of the line of the cut and away from the blade.

_____ e. Check all locks on adjustments before cutting.

_____ f. Keep the table and floor around the saw free of scraps.

_____ g. Use your finger to push when cutting narrow strips.

_____ h. Freehand sawing without the fence or miter is fine.

_____ i. Use the fence for a gauge when cutting short pieces.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 7

13. Label the parts of the radial arm saw.

Base

Fence

Column

Blade guards

Handle

Bevel pin

Yoke clamp

Switch

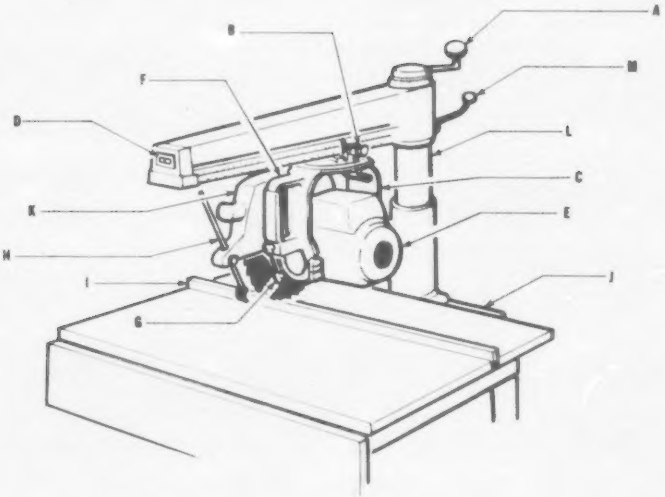
Motor

Kickback guard

Elevating handle

Arm clamp

Rip lock



14. Select the correct safety rules for a radial arm saw by placing either safe or unsafe in each of the blanks below.

_____ a. Leave the locks and clamps loose when turning on the motor.

_____ b. Be sure stock is held firmly against the fence.

_____ c. Leave long ends of boards unsupported when cutting.

_____ d. Keep the guard and antikickback device positioned correctly.

_____ e. Leave the saw at the front of the arm when a cut is finished.

_____ f. Keep your arms and head away from the path of the saw blade.

_____ g. Be sure the motor is off and the blade has stopped before making adjustments.

_____ h. Keep plenty of sawdust on the table to allow boards to slide.

_____ i. Leave the saw only after it has stopped running.

_____ j. Pull the saw rapidly toward you when cutting across the board.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 8

15. Label the parts of the jointer.

Fence control

Depth scale

Front guard

Rear table adjusting handwheel

Front infeed table

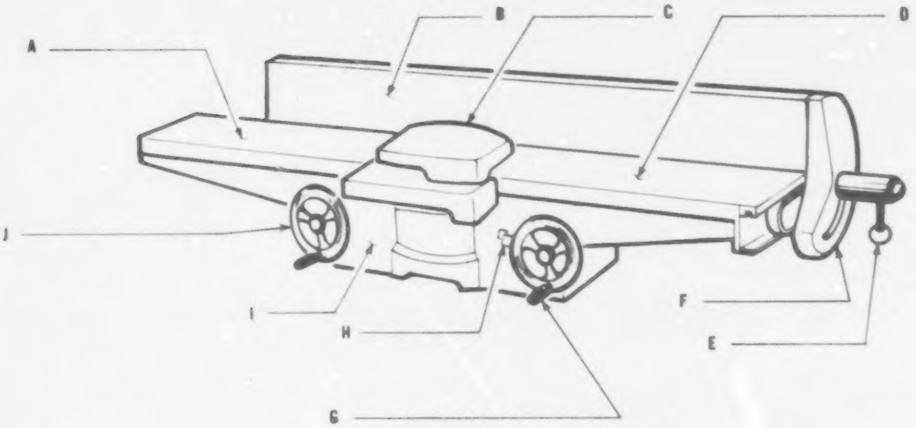
Rear outfeed table

Fence

Base

Front table adjusting handwheel

Tilt scale



16. Select the correct safety rules for the jointer by placing either safe or unsafe in each of the blanks below.

_____ a. Remove the front guard when necessary.

_____ b. Try to remove the complete depth in one cut.

_____ c. Feed wood with the grain.

_____ d. Keep your hands away from the cutter even if the guard is in place.

_____ e. Disconnect the power to make adjustments.

_____ f. Keep the cutter knives dull so they will not cut someone.

_____ g. You may run through lumber with nails, knots, and paint.

_____ h. Use a push block when jointing thin wood.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 9

17. Label the parts of the bandsaw.

Lamp

Blade guide

Guide post

Blade

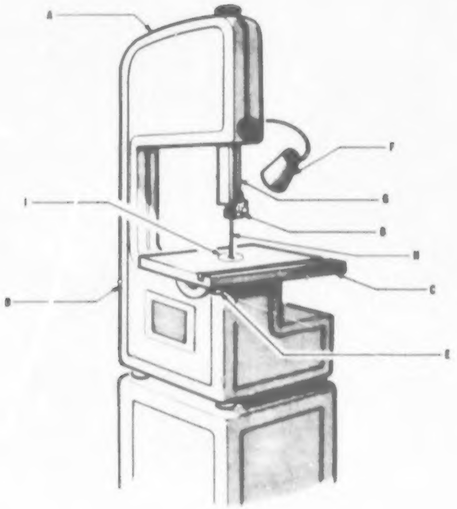
Rear guard

Upper wheel guard

Table

Table tilt lock

Table insert



18. Select the correct safety rules for the bandsaw by placing either safe or unsafe in each of the blanks below.

_____ a. Keep all scraps on the table or stacked around the machine.

_____ b. Use your thumb when sawing small pieces.

_____ c. Keep wheel guards in place.

_____ d. Make adjustments with power disconnected.

_____ e. Keep your hands away from the blade.

_____ f. Reach to the left of the blade if necessary.

_____ g. Leave the saw only after it has stopped.

UNIT VIII

STATIONARY POWER TOOLS

UNIT TEST--PART 10

19. Label the parts of the power miter box.

Miter gauge

Fence

Blade guards

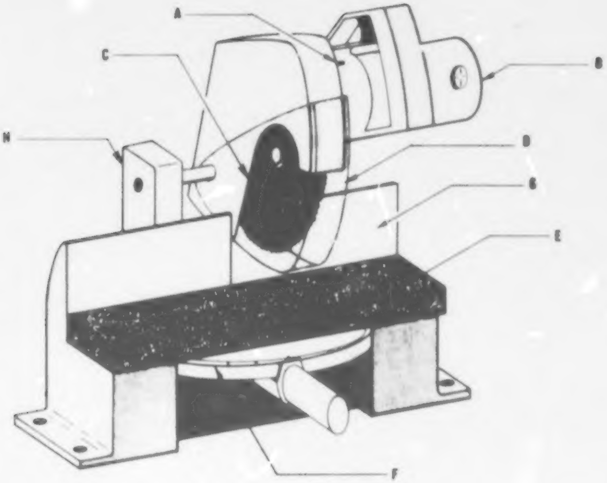
Brake

Table

Swivel arm

Saw

Blade



20. Select the correct safety rules for the power miter box by placing either safe or unsafe in each of the blanks below.

_____ a. Have blade guards in place and working properly.

_____ b Hold stock down and against the fence.

_____ c. Move the saw quickly into the stock.

_____ d. Keep your fingers and hands away from the blade.

_____ e. Raise the saw quickly after the cut is finished.

_____ f. Leave the motor running when making adjustments.

_____ g. Leave the saw running at all times.

21. Demonstrate the ability to:

    a. Drill holes to location using the drill press.

    b. Square a board using the table saw.

    c. Rip a board to width using the table saw.

    d. Cut a board to length using the radial arm saw.

    (NOTE: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT VIII

STATIONARY POWER TOOLS

ANSWERS TO TEST

SECTION 1

1. a. 3
   b. 2
   c. 1
   d. 5
   e. 4
2. a.
   b. ✓
   c. ✓
   d. ✓
   e.
   f. ✓
   g. ✓
   h.
   i.
   j.
   k. ✓
   l. ✓

SECTION 2

3. a. Switch
   b. Motor
   c. Disc guard
   d. Abrasive disc

e. Tilting table

f. Base

g. Miter gauge

h. Lock knob

4. a. unsafe

b. unsafe

c. safe

d. unsafe

e. unsafe

f. safe

g. safe

h. safe

i. unsafe

j. safe

SECTION 3

5. a. Hose pressure

b. Regulator

c. Pressure gauge

d. Motor

e. Air filter

f. Oil level

g. Tank drain

h. Tank

6. a. unsafe

b. unsafe

c. safe

d. unsafe

e. safe

f. unsafe

SECTION 4

7. a. Shield

b. Wheel

c. Water tray

d. Tool rest

e. Switch

f. Motor

g. Wheel guard

h. Plane blade grinding attachment

i. Dust chute

j. Pedestal

8. a. safe

b. unsafe

c. unsafe

d. safe

e. unsafe

f. unsafe

g. safe

h. safe

SECTION 5

9. a. Belt guard

b. Variable speed control

c. Switch

d. Depth stop

e. Quill lock

f. Chuck

g. Table

h. Base

i. Motor

j. Feed wheel

k. Table lock

l. Column

10. a. safe

b. safe

c. safe

d. safe

e. unsafe

f. safe

g. safe

h. safe

i. safe

j. safe

k. safe

l. safe

m. safe

SECTION 6

11. a. Blade cover

b. Blade guard

c. Miter guard

d. Fence

e. Switch

f. Fence lock

g. Blade height handwheel

h. Sawdust collector

i. Table tilting handwheel

j. Table

12. a. unsafe

b. safe

c. unsafe

d. safe

e. safe

f. safe

g. unsafe

h. unsafe

i. unsafe

SECTION 7

13. a. Elevating handle

b. Rip lock

c. Yoke clamp

d. Switch

e. Motor

f. Handle

g. Bevel pin

h. Kickback guard

i. Fence

j. Base

k. Blade guard

l. Column

m. Arm clamp

14. a. unsafe

b. safe

c. unsafe

d. safe

e. unsafe

f. safe

g. safe

h. unsafe

i. safe

j. unsafe

SECTION 8

15. a. Rear outfeed table

b. Fence

c. Front guard

d. Front infeed table

e. Fence control

f. Tilt scale

g. Rear table adjusting handwheel

h. Depth scale

i. Base

j. Front table adjusting handwheel

16. a. unsafe

b. unsafe

c. safe

d. safe

e. safe

f. unsafe

g. unsafe

h. safe

SECTION 9

17. a. Upper wheel guard

b. Blade guide

c. Table

d. Rear guard

e. Table tilt lock

f. Lamp

g. Guide post

h. Blade

i. Table insert

18. a. unsafe

b. unsafe

c. safe

d. safe

e. safe

f. unsafe

g. safe

SECTION 10

19. a. Brake

b. Saw

c. Blade

d. Blade guards

e. Table

f. Miter gauge

g. Fence

h. Swivel arm

20. a. safe

b. safe

c. unsafe

d. safe

e. unsafe

f. unsafe

g. unsafe

21. Evaluated to the satisfaction of the instructor.

UNIT IX

FASTENING DEVICES

UNIT OBJECTIVE

After completing this unit, the student will be able to identify each of the fastening devices used in construction trades and point out the different use of each. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms and definitions associated with fastening devices.
2. Select the correct nails for their use.
3. Select the correct staples for their use.
4. Point out the uses of power staplers and nailers.
5. Identify each of the types of screws.
6. Identify the types of bolts according to their uses.
7. Identify each of the types of washers.
8. Identify each of the types of nuts.
9. Identify each of the types of hinges.
10. Identify each of the types of latches.
11. Identify each of the special types of fastening devices.
12. Demonstrate the ability to:
    a. Determine the length of nails from the penny size.
    b. Select the correct type of nail for a specified job.
    c. Construct a fastener display.

UNIT IX

FASTENING DEVICES

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide student with objective sheet.

   B. Provide student with information and assignment sheets.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Discuss information and assignment sheets.

   F. Show students types of fasteners and uses within the shop.

   G. Have students complete assignment sheets.

   (Note: Assignment Sheet #3--Construct a Fastener Display; may be used as a group project.)

   H. Give test.

   I. Arrange field trip to lumberyard to observe types, prices, and methods of purchasing fasteners.

II. Student:

   A. Read objective sheet.

   B. Study information sheet.

   C. Complete assignment sheet.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheet

C. Transparency masters

  1. IX-TM-1--Types of Nails
  2. IX-TM-2--Nail Sizes
  3. IX-TM-3--Types of Staples
  4. IX-TM-4--Power Staples and Nailers
  5. IX-TM-5--Types of Screws
  6. IX-TM-6--Types of Bolts
  7. IX-TM-7--Specialized Bolts
  8. IX-TM-8--Types of Washers
  9. IX-TM-9--Types of Nuts
  10. IX-TM-10--Types of Hinges
  11. IX-TM-11--Types of Latches
  12. IX-TM-12--Special Fasteners

D. Assignment sheets

  1. Assignment Sheet #1--Determine the Length of Nails From the Penny Size
  2. Assignment Sheet #2--Select the Correct Type of Nial for a Specified Job
  3. Assignment Sheet #3--Construct a Fastener Display

E. Answers to assignment sheets

F. Test

G. Answers to test

II. References:

A. Duo Fast Catalogue. Dallas: Duo Fast Texas, Inc.

B. Foxworth-Galbraith Catalogue. Commerce, Texas: Foxworth-Galbraith Company, Inc.

C. Ramset Catalogue. Branford, Connecticut: Ramset Fastening Systems.

D. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Goodheart-Wilcox Company, Inc., 1976.

UNIT IX

FASTENING DEVICES

INFORMATION SHEET

I. Terms and definitions

A. Locknut--Term applied to the outer of two nuts on a bolt when tightened together

B. "Penny"--A term identifying nail length

(Note: This term originally meant price per hundred nails.)

C. d--This is the abbreviation for "penny"

(Note: The length increases by 1/4 inch for each increase in size.)

(Example: A 2d (2 penny) nail is 1 inch long and a 3d (3 penny) nail is 1 1/4 inches long.)

D. Casing--Refers to the frame unit around doors and windows.

E. Pneumatic--Powered by air pressure

F. Flush mounted--Even with the surface of the wood

G. Studs--The vertical boards or metal that forms the walls during framing

H. Prefabrication--Built before it reaches the construction site

I. Truss--Triangular shaped wood structure used to form a roof of a building

II. Types of nails

A. Common--Used in rough carpentry

B. Box--Used in framing construction and light work

C. Casing--Used for interior and exterior finish carpentry work

D. Finish--Used for trim and cabinet work

E. Cement or rosin-coated--Used on siding and sheetrock

F. Galvanized roofing--Used on composition shingles and roll roofing

G. Shingle--Used on wood shingles

(Note: Nos. 3 and 4 box nails are often substituted.)

H. Duplex--Double headed nails used in concrete form construction

I. Lead head--Used on corrogated sheet iron

(Note: The lead washer at the head prevents leaks.)

J. Concrete--Used in attaching boards to concrete slabs

K. Galvanized zinc-coated--Used to prevent rust or discoloring of wood

III. Types of staples

A. Electrical--Used in fastening wiring to boards

B. Fence--Used in attaching barbed wire to post

C. Construction--Used in power staplers to attach fabrics, siding, insulation, ceiling tile, and other light materials

D. Skotch wood joiners--Used to hold ends or edges of wood together

IV. Power staplers and nailers

A. Round head nailers--Air powered nailers used in driving nails rapidly

B. Powder nailer--A powder-activated nailer for shooting nails into concrete and steel

C. Air tackers--Air-powered stapler used in light-duty tacking such as upholstering or carpet laying

D. Staple nailers--Air or electric-powered stapler used in nailing light framing such as furniture, crates, and other light lumber work

V. Types of screws

   A. Round head--Used where the head of the screw may extend from the surface of the material

   B. Flat head--Used where head of screw must be flush mounted

   C. Oval head--Used on cabinet hardware

   D. Drywall and plaster--Used for attaching sheetrock and wall board to metal studs

VI. Types of bolts

   A. Carriage--Used where head needs to be flush mounted

   B. Machine--Used for fastening heavy metal or wood parts

   C. Stove--Used for fastening light metal parts

   D. Toggle--Used to fasten materials to a hollow wall such as concrete blocks

   E. Lag (bolt or screw)--Used to fasten wood or metal to concrete or steel beams

   F. Special bolts

      1. U-bolt

      2. Eye bolt

      3. Turnbuckle

      4. Expansion

      5. J-bolt

      6. Anchor

VII. Types of washers

   A. Flat

   B. Lock

      1. Split

      2. Internal

    3. External

    4. Countersunk

VIII. Types of nuts

  A. Hexagon

  B. Square

  C. Cap

  D. Wing

  E. Castle

IX. Types of hinges

  A. Butt--Used for heavy doors and gates

  B. Strap--General purpose hinges for heavy doors

  C. Cabinet--Used on cabinet doors

  D. T--Used to fasten a door to studding and gates to post

  E. Screw hook and strap--Used on fence gates

X. Types of latches

  A. Canebolt--Used for holding heavy door at the bottom in wood or concrete

  B. Gravity gate latch--Used to keep doors shut when pushed to

  C. Hasp--Used on a door where a pad lock will be required

XI. Special fasteners

  A. Expansion shields--Used to attach a piece of metal or wood by being expanded into a pre-drilled hole

    1. Lead

    2. Plastic

  B. Earth augers--Used to hold protable buildings or mobile homes in place

C. Joist and sill hangers--Used to support floor or ceiling joist or sills

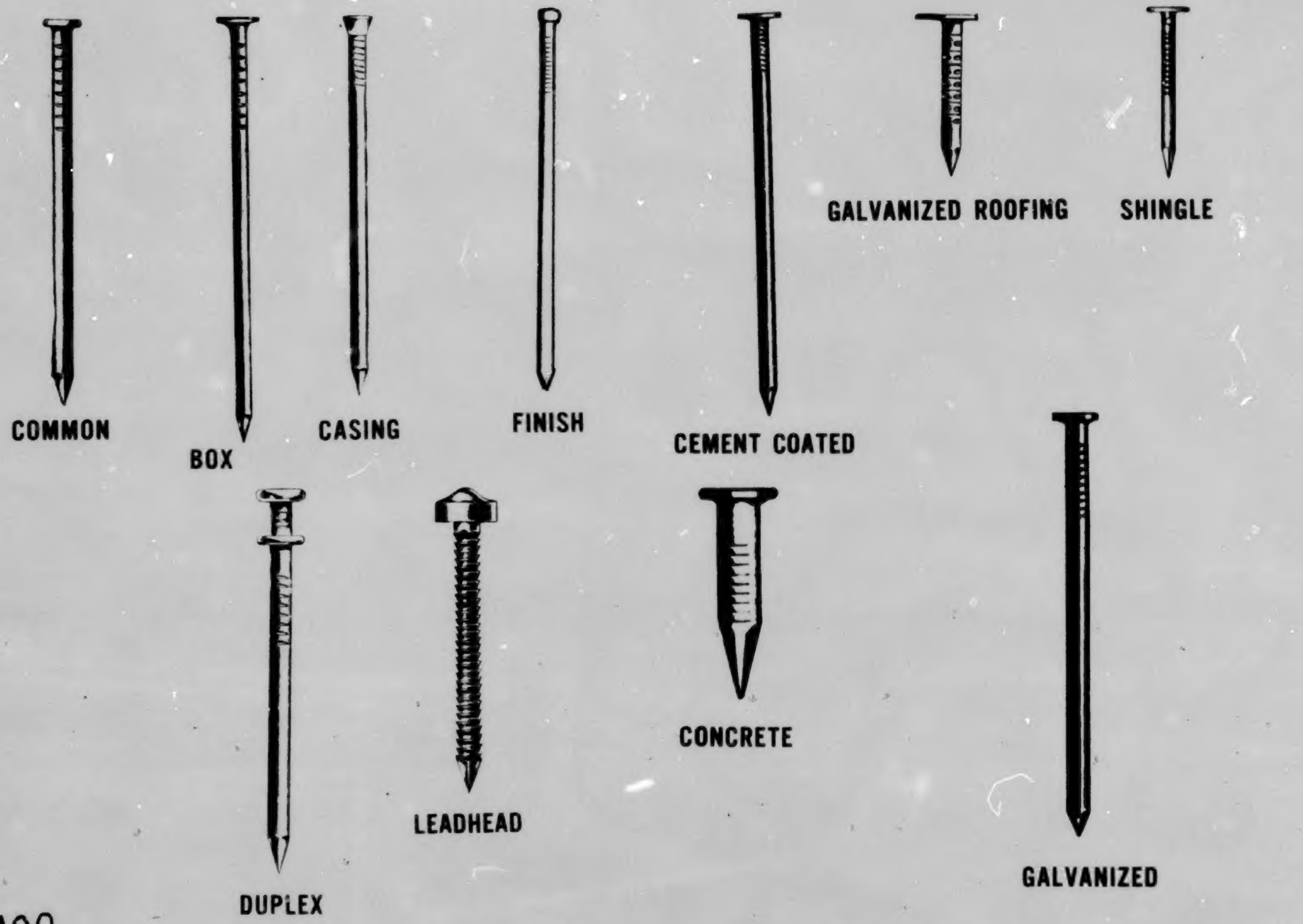
D. Truss gussets--Used in prefabrication of trusses

(Note: Spiked metal plates are hammered into place.)

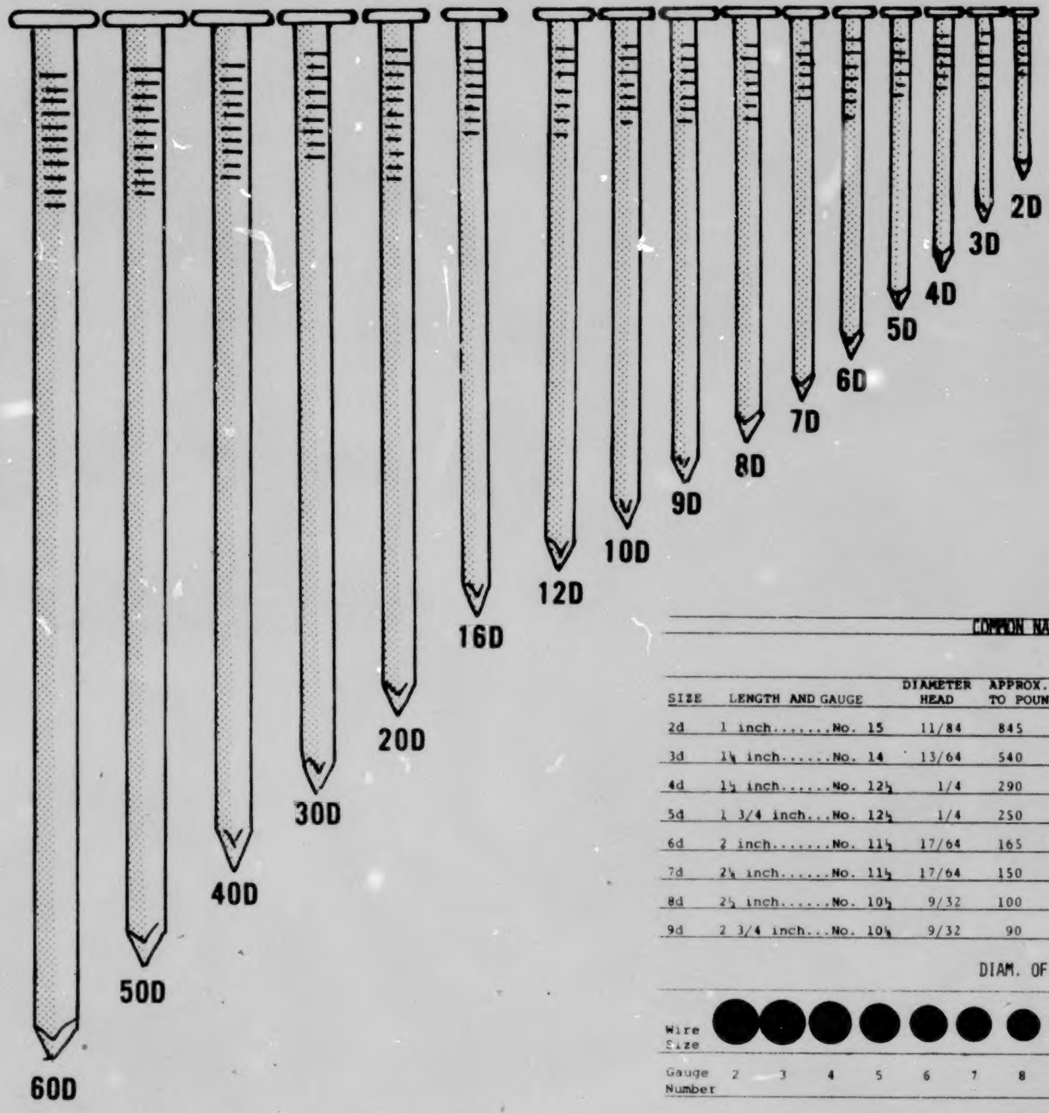
E. Glue--Used to fasten pieces of wood without nails

F. Anchoring cement--Used to secure a bolt in a hole in concrete or steel

TYPES OF NAILS


COMMON
BOX
CASING
FINISH
CEMENT COATED
GALVANIZED ROOFING
SHINGLE
DUPLEX
LEADHEAD
CONCRETE
GALVANIZED

NAIL SIZES



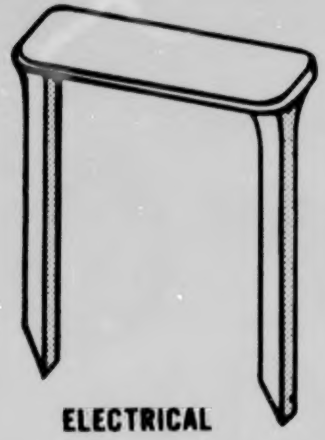
COMMON NAILS REFERENCE TABLE

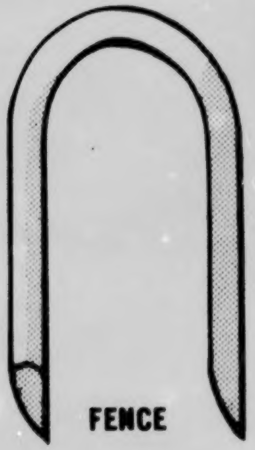
SIZE	LENGTH AND GAUGE	DIAMETER HEAD	APPROX. NO. TO POUNDS	SIZE	LENGTH AND GAUGE	DIAMETER HEAD	APPROX. NO. TO POUNDS
2d	1 inch.......No. 15	11/84	845	10d	3 inch......No. 9	8/16	65
3d	1¼ inch......No. 14	13/64	540	12d	3¼ inch.....No. 9	8/16	60
4d	1½ inch......No. 12½	1/4	290	16d	3½ inch.....No. 8	11/32	45
5d	1 3/4 inch...No. 12½	1/4	250	20d	4 inch......No. 6	13/32	30
6d	2 inch.......No. 11½	17/64	165	30d	4½ inch.....No. 5	7/16	20
7d	2¼ inch......No. 11½	17/64	150	40d	5 inch......No. 4	16/32	17
8d	2½ inch......No. 10½	9/32	100	50d	5½ inch.....No. 3	1/2	13
9d	2 3/4 inch...No. 10¼	9/32	90	60d	6 inch......No. 2	17/32	10

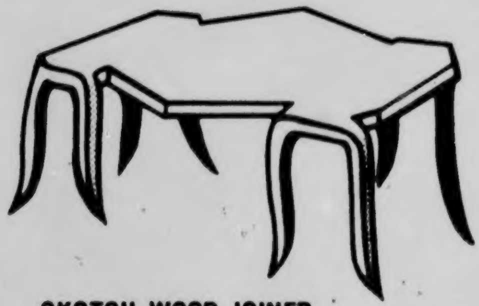
DIAM. OF NAILS FROM 2 TO 18

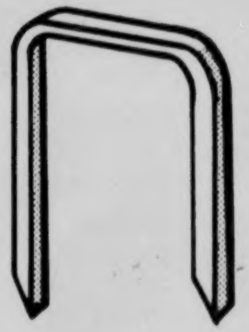
Wire Size	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Gauge Number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

TYPES OF STAPLES


ELECTRICAL

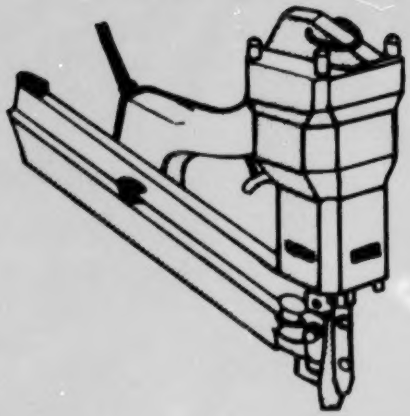

FENCE


SKOTCH WOOD JOINER

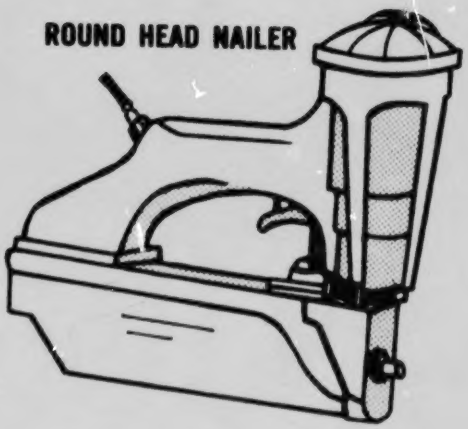

CONSTRUCTION

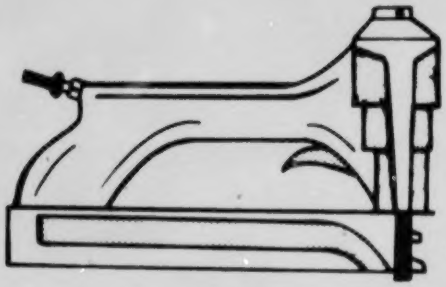
POWER STAPLERS AND NAILERS

POWER NAILER

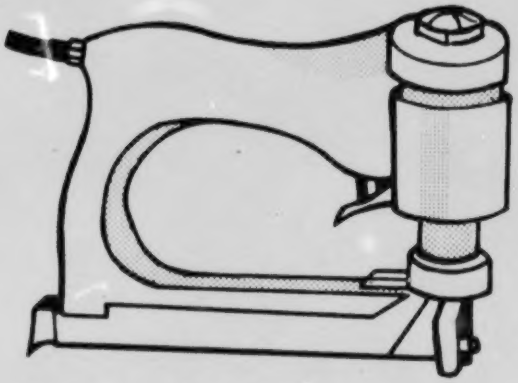


ROUND HEAD NAILER



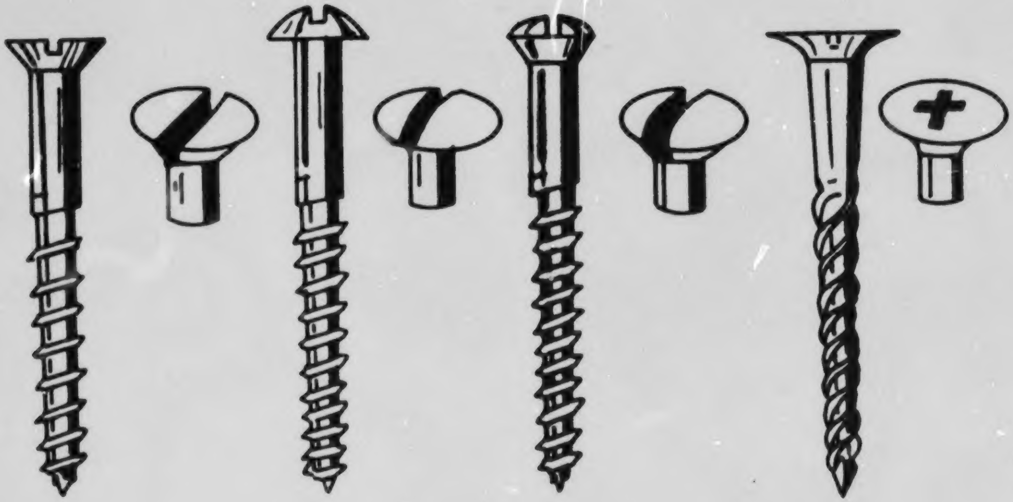


STAPLE NAILER

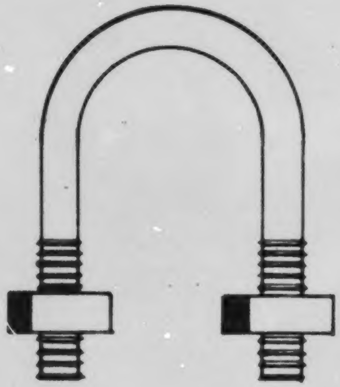


AIR TACKER

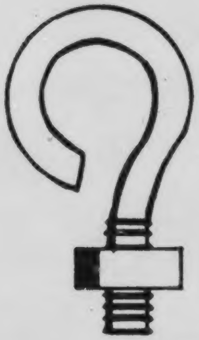
TYPES OF SCREWS


FLATHEAD
ROUND HEAD
OVAL HEAD
DRYWALL OR PLASTER

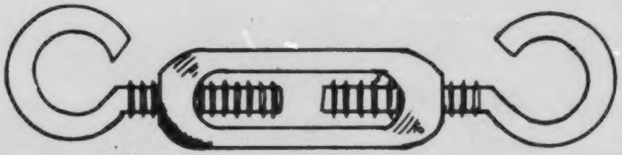
SPECIALIZED BOLTS



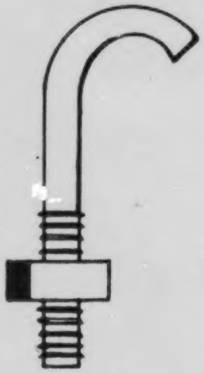
U BOLT



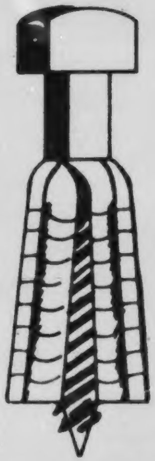
EYE



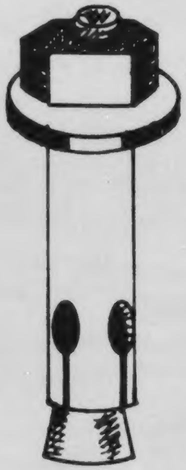
TURNBUCKLE



J BOLT

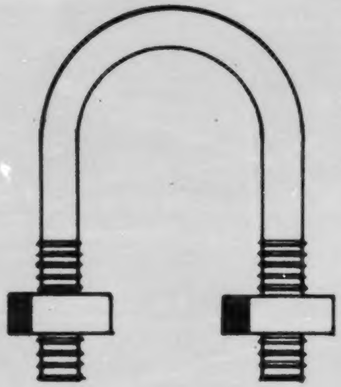


EXPANSION

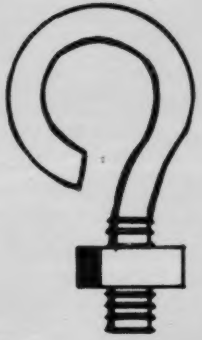


ANCHOR

SPECIALIZED BOLTS



U BOLT



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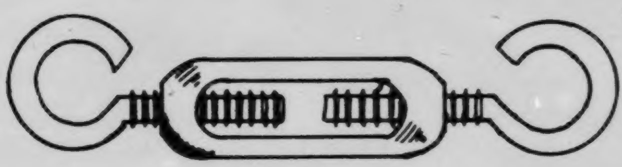
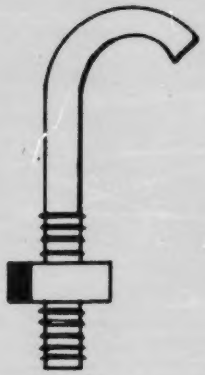
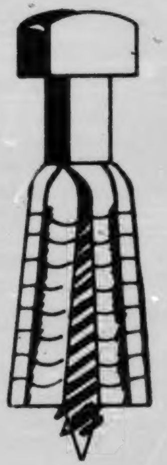


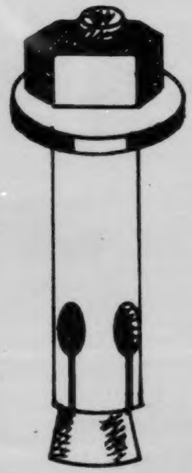
TURNBUCKLE



J BOLT

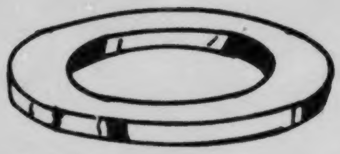


EXPANSION

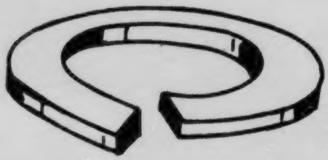


ANCHOR

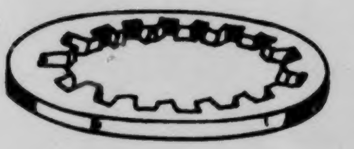
TYPES OF WASHERS



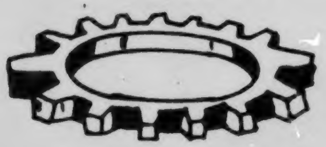
FLAT



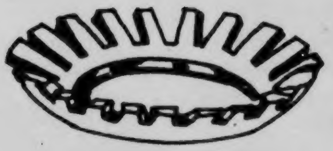
LOCK



INTERNAL LOCK

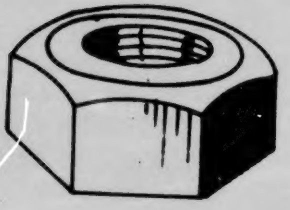


EXTERNAL LOCK

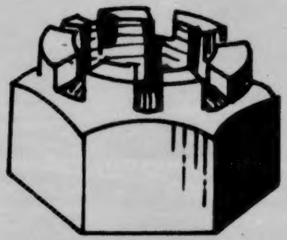


COUNTERSUNK LOCK

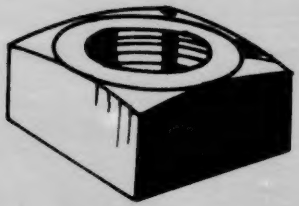
TYPES OF NUTS



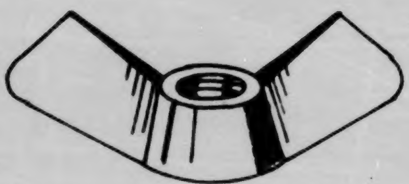
HEXAGON



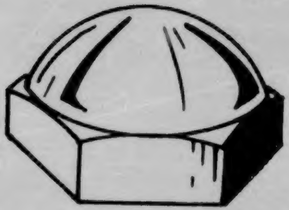
CASTLE



SQUARE

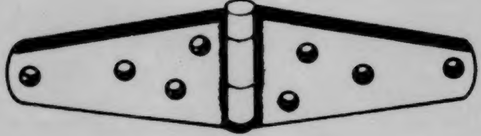


WING

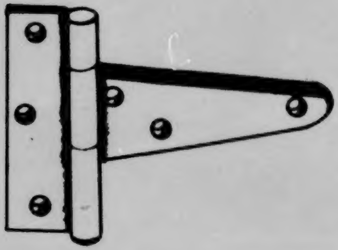


CAP

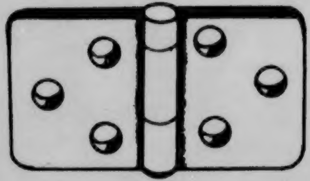
TYPES OF HINGES



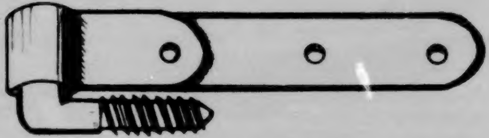
STRAP



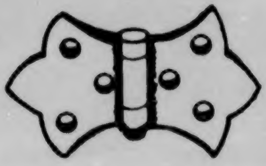
T



BUTT

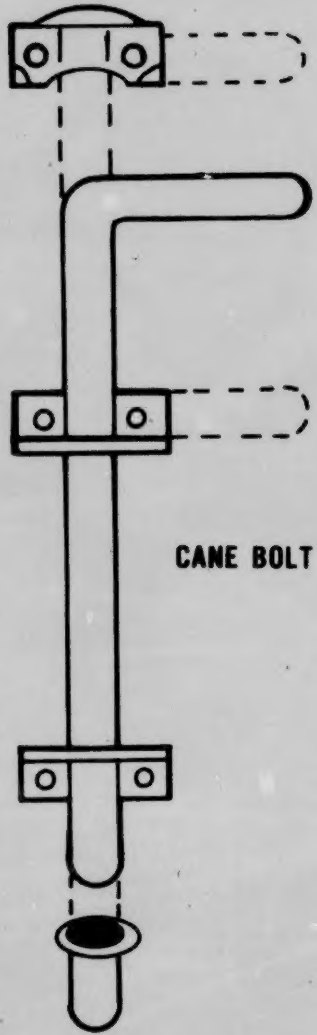


SCREW HOOK AND STRAP

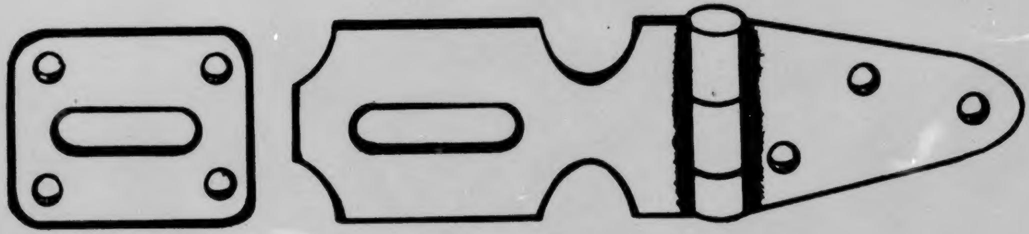


CABINET

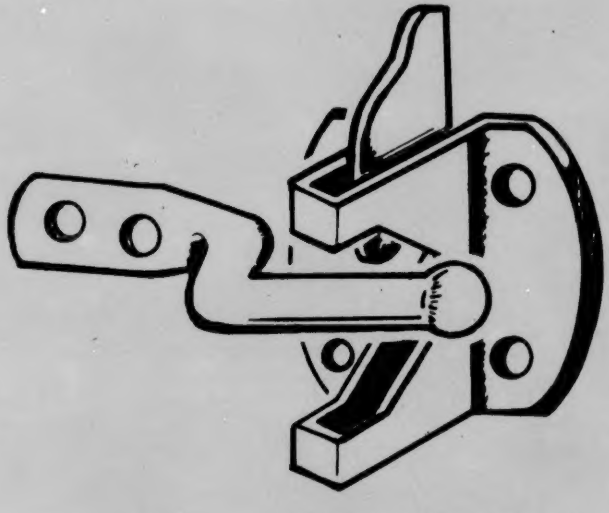
TYPES OF LATCHES



CANE BOLT

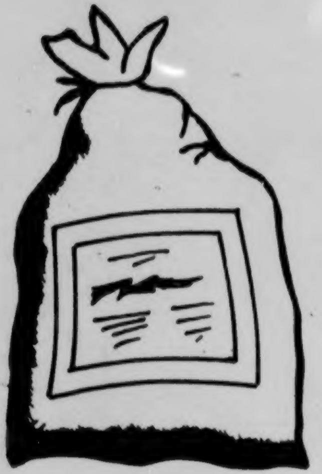


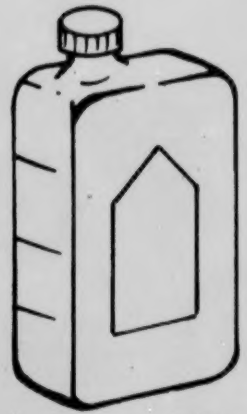
HASP

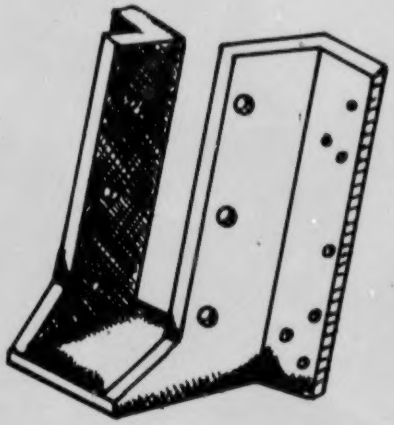


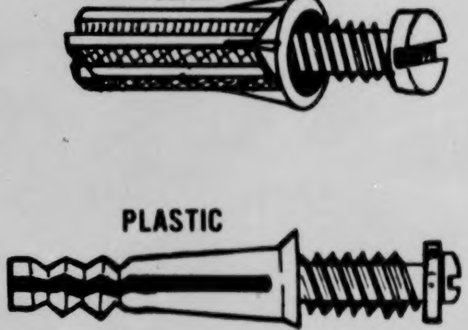
GRAVITY GATE LATCH

SPECIAL FASTENERS


ANCHORING CEMENT

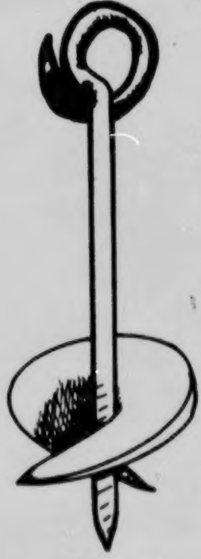

GLUE

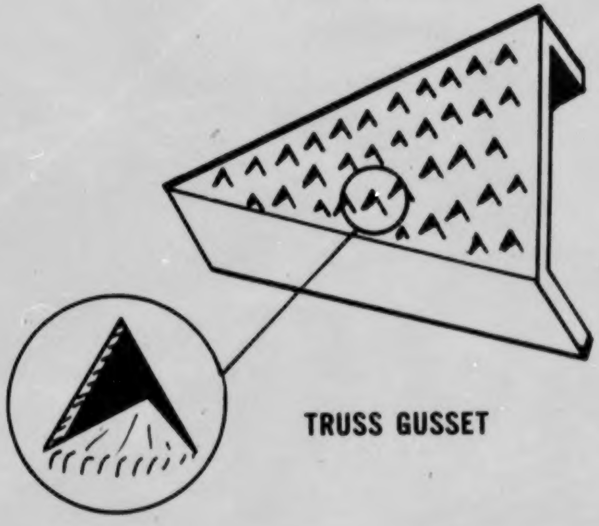

JOIST HANGER


LEAD

PLASTIC

EXPANSION SHIELDS


EARTH AUGER

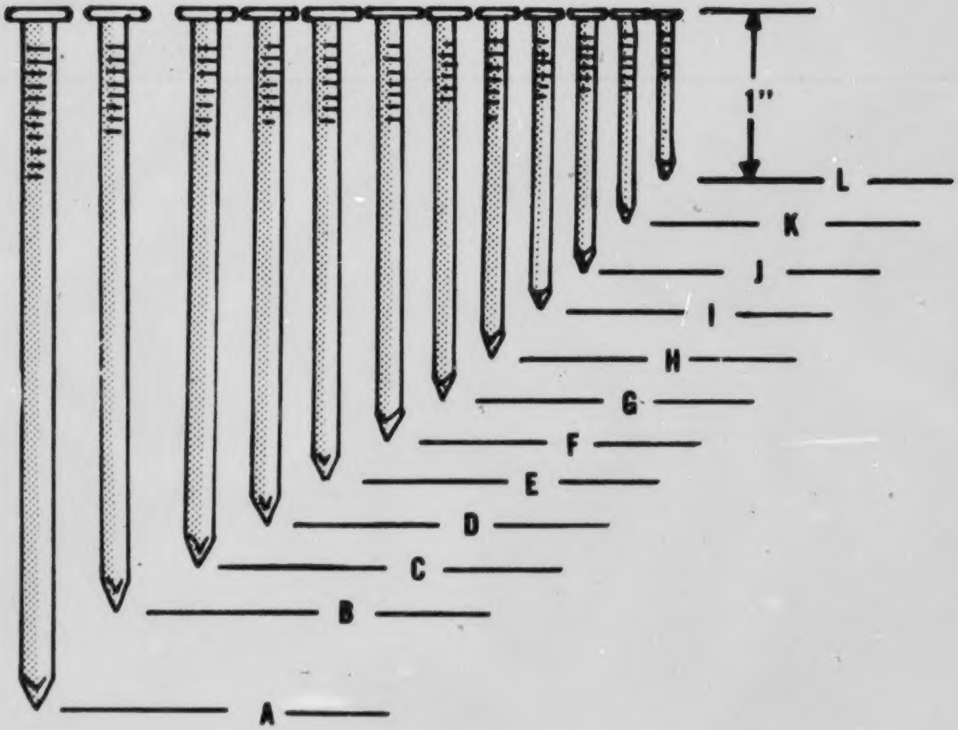

TRUSS GUSSET

UNIT IX

FASTENING DEVICES

ASSIGNMENT SHEET #1--DETERMINE THE LENGTH OF NAILS FROM THE PENNY SIZE

Directions: From the drawing below, determine the length of each nail according to the penny size shown. Remember d indicates penny size. Write the size in the blank provided. (Note: Nail lengths increase 1/4 inch per "d" size.)



UNIT IX

FASTENING DEVICES

ASSIGNMENT SHEET #2--SELECT THE CORRECT TYPE OF NAIL FOR A SPECIFIED JOB

Directions: Select the correct nail from the list to be used for each of the jobs described below. Write your selection in the blank provided.

Common

Box

Casing

Finish

Cement coated

Galvanized

Galvanized roofing

Shingle

Duplex

Lead head

Concrete

_____________________ a. The molding around a window frame needs to be attached.

_____________________ b. A thin piece of molding needs to be put in around a cabinet

_____________________ c. A wall stud needs to be nailed in place to a floor plate.

_____________________ d. A brace needs to be nailed to a temporary concrete form.

_____________________ e. Composition shingles are being put on over felt roofing.

_____________________ f. Sheetrock is being hung on a ceiling.

_____________________ g. Felt paper is being nailed to an exterior wall.

_____________________ h. Thin boards are being nailed to a fence railing.

_____________________ i. A brace is temporarily nailed in place for support.

_____________________ j. Siding is being installed on a wall that rain will get to.

UNIT IX

FASTENING DEVICES

ASSIGNMENT SHEET #3--CONSTRUCT A FASTENER DISPLAY

Directions: Put together a display of fasteners. Have it include all types possible. If nails are the only fasteners available, use these and group them according to use and size. These may be taped, stapled, or driven into the board. Label these according to their size and use for later reference when buying nails.

UNIT IX

FASTENING DEVICES

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

a. 4 inches

b. 3 1/2 inches

c. 3 1/4 inches

d. 3 inches

e. 2 3/4 inches

f. 2 1/2 inches

g. 2 1/4 inches

h. 2 inches

i. 1 3/4 inches

j. 1 1/2 inches

k. 1 1/4 inches

l. 1 inch

Assignment Sheet #2

a. Casing

b. Finish

c. Common

d. Duplex

e. Galvanized roofing

f. Cement coated

g. Galvanized roofing

h. Box

i. Duplex

j. Galvanized

Assignment Sheet #3

Evaluated to the satisfaction of the instructor

UNIT IX

FASTENING DEVICES

UNIT TEST

1. Match the term on the right to the correct definition by placing the correct number in the blank provided.

____a. Term applied to the outer of two nuts on a bolt when tightened together

____b. A term identifying nail length

____c. The abbreviation for penny

____d. Refers to the frame unit around a door or window

____e. Powered by air pressure

____f. Even with the surface of the wood

____g. The vertical boards or metal that forms the walls during framing

____h. Built before it reaches the construction site

____i. A triangular-shaped wood structure used to form a roof of a building

1. "Penny"
2. Casing
3. Truss
4. Locknut
5. d
6. Pneumatic
7. Flush mounted
8. Prefabrication
9. Studs

2. Select the correct nail for each of the uses below.

Common

Box

Finish

Shingle

Lead head

Galvanized

Casing

Cement coated

Galvanized roofing

Duplex

Concrete

__________________________a. Used in rough carpentry

__________ b. Used in framing and light work

__________ c. Used in interior and exterior finish work

__________ d. Used for trim and cabinet work

__________ e. Used on siding and sheetrock

__________ f. Used on composition shingles and roll roofing

__________ g. Used on wood shingles

__________ h. Double-headed nails used in concrete form construction

__________ i. Used on corrugated sheet iron

__________ j. Used to attach boards to concrete slabs

__________ k. Zinc-coated nails used to prevent rust or discoloring of wood

3. Select the correct staple for each of the uses below.

Fence	Electrical
Construction	Skotch wood joiners

__________ a. Used in fastening house wiring to boards

__________ b. Used to attach barbed wire to post

__________ c. Used to attach fabrics, siding, insulation, ceiling tiles, and other light materials

4. Point out the use of each of the power staplers or nailers by writing the correct number in the blank provided.

____a. Round head nailer

____b. Powder nailer

____c. Air tacker

____d. Staple nailer

1. A powder-activated device for shooting nails into concrete and steel

2. An air powered device used in light tacking such as upholstery or carpet laying

3. Air powered device used to rapidly drive nails

4. Air or electric powered device used to fasten light framing such as furniture, crates, or other light lumber

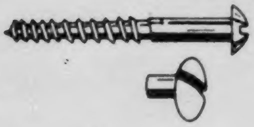
5. Identify each of the screws pictured below.

Drywall or plaster

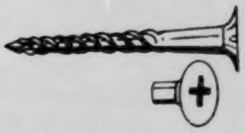
Flat head

Round head

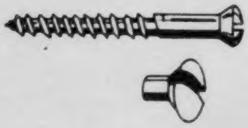
Oval head



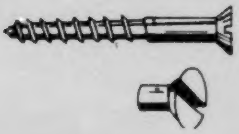
____________________________ a.



____________________________ b.



____________________________ c.



____________________________ d.

6. Identify the type of bolt for each use listed below. Write the name and number of its use in the blanks provided.

Stove

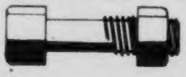
Toggle

Carriage

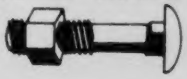
Machine

Lag

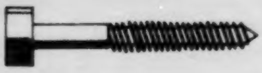
1. Used where the head needs to be flush mounted
2. Used for fastening heavy metal or wood parts
3. Used for fastening light metal parts
4. Used to fasten materials to a hollow wall
5. Used to fasten wood or metal to concrete



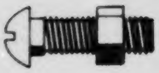
a. _______, ____________



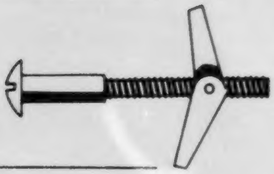
b. _______, ____________



c. ____, ________________



d. ____, ________________



e. ____, ________________

7. Identify each of the types of washers pictured below.

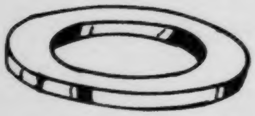
Split lock washer

Flat washer

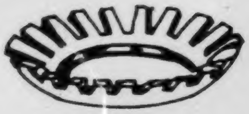
External lock washer

Internal lock washer

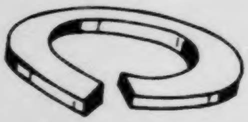
Countersunk lock washer



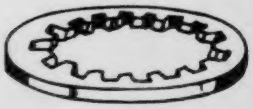
____________________ a.



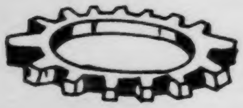
____________________ b.



____________________ c.



____________________ d.



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3. Identify each of the types of nuts pictured below.

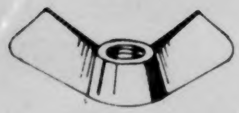
Castle

Square

Cap

Hexagon

Wing



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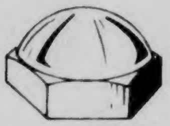

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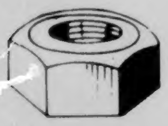

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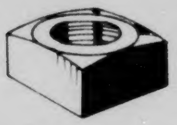

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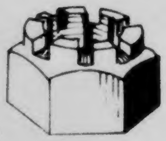


________________ e.

9. Identify the types of hinges pictured below.

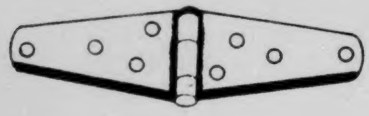
Butt

T

Screw hook and strap

Strap

Cabinet



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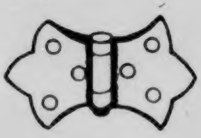

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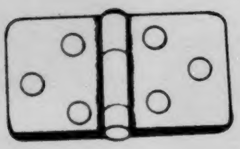

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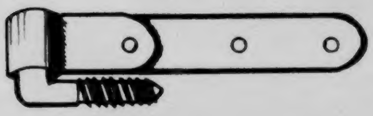

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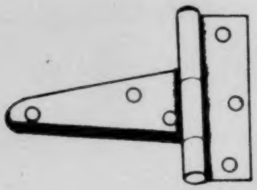


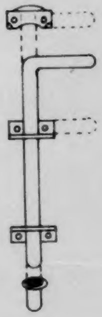
____________________ e.

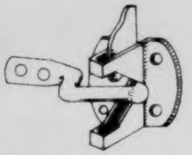
10. Identify each of the types of latches pictured below.

Cane bolt

Hasp

Gravity gat latch





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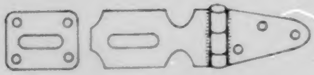


____________________ c.

11. Identify each of the special types of fastening devices pictured below.

Truss gussets

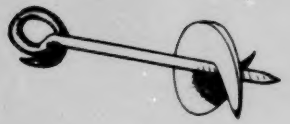
Glue

Earth auger

Expansion shield

Anchoring cement

Joist and sill hangers



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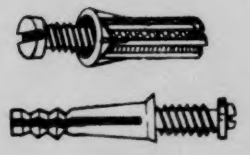

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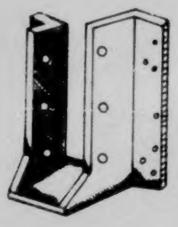

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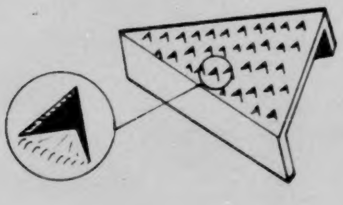

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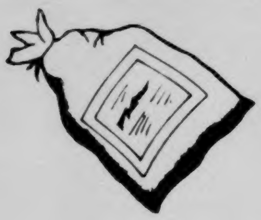

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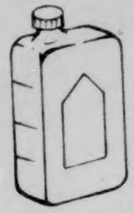


_______________________ f.

12. Demonstrate the ability to:

    a. Determine the length of nails from the penny size.

    b. Select the correct type of nail for a specified job.

    c. Construct a fastener display.

    (Note: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT IX

FASTENING DEVICES

ANSWERS TO TEST

1. a. 4
   b. 1
   c. 5
   d. 2
   e. 6
   f. 7
   g. 9
   h. 8
   i. 3
2. a. Common
   b. Box
   c. Casing
   d. Finish
   e. Cement coated
   f. Galvanized roofing
   g. Shingle
   h. Duplex
   i. Lead head
   j. Concrete
   k. Galvanized
3. a. Electrical
   b. Fence
   c. Construction

d. Skotch wood joiners

4. a. 3
   b. 1
   c. 2
   d. 4
5. a. Round head
   b. Drywall or plaster
   c. Oval head
   d. Flat head
6. a. 2, Machine
   b. 1, Carriage
   c. 5, Lag
   d. 3, Stove
   e. 4, Toggle
7. a. Flat washer
   b. Countersunk lock washer
   c. Split lock washer
   d. Internal lock washer
   e. External lock washer
8. a. Wing
   b. Cap
   c. Hexagon
   d. Square
   e. Castle
9. a. Strap
   b. Cabinet
   c. Butt

d. Screw hook and strap

e. T

10. a. Gravity gate latch

b. Cane bolt

c. Hasp

11. a. Earth auger

b. Expansion shield

c. Joist and sill hanger

d. Truss gussets

e. Anchoring cement

f. Glue

12. Evaluated to the satisfaction of the instructor

UNIT X

JOB APPLICATION AND INTERVIEW

UNIT OBJECTIVE

After completing this unit of instruction, the student will be able to identify terms, definitions, and procedures involved in job applications and interviews. The student will also prepare a resume, write a letter of application for employment, complete an employment application form and, in role-playing situations, demonstrate the ability to call for an interview appointment and participate in an interview. This knowledge will be evidenced by demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completing this unit of instruction, the student will be able to:

1. Identify terms relating to job application and interview with their correct definitions.
2. Distinguish items of information to be included on a resume.
3. List the two methods of applying for a job.
4. Identify examples of proper dress and grooming for an interview.
5. Select the correct ways to prepare for an interview.
6. Point out the proper conduct during an interview.
7. Select the positive attitudes an employer looks for during an interview.
8. Name the reasons one may not get a job.
9. Demonstrate the abiltiy to:
    a. Write a letter of application for employment.
    b. Role-play, making an interview appointment by phone.
    c. Prepare and write a resume.
    d. Answer questions an employer may ask during an

interview.

e. Participate in and evaluate a role-played job interview.

f. Complete an employment application form.

g. Write a follow-up letter.

UNIT X

JOB APPLICATION AND INTERVIEW

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide objectives sheet.

   B. Provide information and assignment sheets.

   C. Discuss objectives.

   D. Discuss information and assignment sheets.

   E. Make transparencies.

   F. Demonstrate procedures contained in role-playing situations.

   G. Give test and discuss results.

II. Student:

   A. Read objectives sheet.

   B. Study information sheets.

   C. Complete assignment sheets.

   D. Perform procedures involved in role-playing situations.

   E. Take test and take part in discussion.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objectives sheet

   B. Information sheets

      1. Information Sheet #1--The Resume and Terminology

      2. Information Sheet #2--Applying for the Job

      3. Information Sheet #3--The Interview

4. Information Sheet #4--Interview Failures

C. Transparency masters

1. X-TM-1--Appropriate Dress for an Interview--Male

2. X-TM-2--Appropriate Dress for an Interview--Female

3. X-TM-3--Methods of Applying for a Job

D. Assignment sheets

1. Assignment Sheet #1--Writing a Letter of Application for Employment

2. Assignment Sheet #2--Making an Appointment by Phone

3. Assignment Sheet #3--Preparing and Writing a Resume

4. Assignment Sheet #4--Answering Questions the Employer May Ask

5. Assignment Sheet #5--Completing an Employment Application Form

6. Assignment Sheet #6--Participating In and Evaluating the Job Interview

7. Assignment Sheet #7--Writing a Follow-Up Letter

E. Test

F. Answers to test

II. References:

A. Andrews, Margaret E. The Job You Want. Dallas: Gregg Division, McGraw-Hill Book Company, 1968.

B. Blackledge, Walter L., Ethel H. Blackledge and Helen J. Keily. The Job You Want--How To Get It. 2nd ed. Cincinnati: South-Western Publishing Company, 1975.

C. Kushner, John A. and Helen J. Keily. How to Find and Apply for a Job. 3rd ed. Cincinnati: South-Western Publishing Company, 1975.

UNIT X

JOB APPLICATION AND INTERVIEW

INFORMATION SHEET #1--THE RESUME AND TERMINOLOGY

I. Terms and definitions

A. Applicant--Individual applying for a job

B. Interviewer--Person who interviews the applicant

C. Personal data information sheet--A written summary of the applicant's important information

D. Reference--Person, usually unrelated, who can tell information about the applicant

E. Marital status--Indicates whether the applicant is single, married, or divorced

F. Extracurricular activities--Indicates how the applicant spends leisure-time hours

G. Fringe benefits--The "extras" provided by an employer, such as paid vacations, sick leave, and insurance protection

H. Qualifications--The characteristics, training, schooling, and accomplishments required by an applicant for a job

I. Vocational preparation--Skills in a vocational area gained through formal schooling or work experience

II. Writing a resume

A. Standards

1. Organized logically
2. Neatly written or typed
3. Free of spelling errors
4. Presented in an outline form
5. Limited to one page
6. Honesty in qualifications and experiences

B. Information to be included:

1. Name, address, phone number
2. Type of employment being sought
3. Small photograph of self
4. Personal information
    a. Age, weight, height
    b. Health
    c. Date of birth
    d. Marital status
    e. Social Security number
5. Educational information
    a. Name and address of schools attended
    b. Dates you attended each school
    c. Subjects studied
    d. Awards and extracurricular activities
6. Work experience
    a. Name and address of company
    b. Length of employment
    c. Brief description of duties and responsibilities
7. Note any special skills
8. Reference--Secure permission from person(s) before using name as a reference

UNIT X

JOB APPLICATION AND INTERVIEW

INFORMATION SHEET #2--APPLYING FOR THE JOB

III. Applying for a job

- A. Writing a letter of application
  1. Letter style--individual choice
  2. Attractive form
  3. Arrangement of information in a logical order
  4. Ideas expressed clearly
  5. Material presented briefly and to the point
  6. Written in a positive tone
  7. Free of smudges
  8. Free of grammatical and spelling errors
  9. To include the following information:
     - a. How you found out about the job opening
     - b. Position wanted
     - c. Reason for interest in job
     - d. Reason why your training fits particular job
     - e. Availability of resume
     - f. Personal qualifications
     - g. Request for additional information
     - h. Address and telephone number
- B. Applying by telephone
  1. Securing information as to whether the position has been filled
  2. Securing exact qualifications for the job

3. Requesting an application
4. Requesting an interview
5. Mentioning a resume, if available
6. Offering personal address and telephone number

IV. Proper dress and grooming for an interview

A. Body clean and odor-free
B. Freshly shaven
C. Hair neat, clean, and trimmed
D. Hands and nails clean and trimmed
E. Makeup freshly-applied
F. Teeth brushed
G. Mouthwash used
H. Clothing clean and pressed
I. Conservative clothing style
J. Hosiery free of runs
K. Socks coordinated with suit
L. Shoes clean and polished

V. Steps in preparing for an interview

A. Call or write for an appointment.
B. Know about the job for which you are applying.
C. Learn about the company.
D. If possible, find out the name of the interviewer.
E. Review personal qualifications.
F. Think through possible questions interviewer might ask, such as:
    1. Why you want to work for this particular company
    2. Why you left a previous job

3. What courses you enjoyed in school
4. How you spend your spare time
5. Your extracurricular activities
6. Your vocational goals
7. Your grades in school
8. Your salary expectations

G. Prepare questions to ask about the company.

1. Is the job permanent?
2. What type of advancement is there in the company?
3. What are the fringe benefits?
4. What kind of salary increases are included?
5. When will a decision be made as to whether or not you were hired?

H. Prepare a card with the following types of information needed on the application form.

1. Dates required
2. Correct spelling of difficult words
3. Names, addresses, and phone numbers of persons used as references

UNIT X

JOB APPLICATION AND INTERVIEW

INFORMATION SHEET #3--THE INTERVIEW

VI. Proper conduct during an interview

- A. Greet interviewer with a friendly smile.
- B. Call interviewer by name.
- C. Introduce self.
- D. Shake hands firmly with interviewer.
- E. Sit in a chair only after the interviewer asks you.
- F. Avoid slouching in the chair.
- G. Allow the interviewer to lead the conversation.
- H. Be polite during the interview.
- I. Avoid interrupting the interviewer.
- J. Keep resume and examples of work ready.
- K. Express your ideas and views clearly.
    - 1. Think through answers before speaking.
    - 2. Use correct grammar.
    - 3. Avoid slang.
    - 4. Maintain eye contact with the interviewer.
- L. Be sincere and enthusiastic.
- M. Avoid distracting mannerisms, such as:
    - 1. Smoking or chewing gum
    - 2. Squirminess in chair
    - 3. Crossing legs
    - 4. Tapping fingers
- N. Answer questions honestly about self.

- O. Watch for any signs to indicate the interview is over.
- P. Thank the interviewer for the time allowed.
- Q. Leave promptly.

VII. Attitudes employer looks for during an interview

- A. Enthusiasm and interest
- B. A sense of dedication
- C. Sincerity
- D. Alertness and quickness of mind
- E. Honesty
- F. Desire to work
- G. Desire to improve oneself

UNIT X

JOB APPLICATION AND INTERVIEW

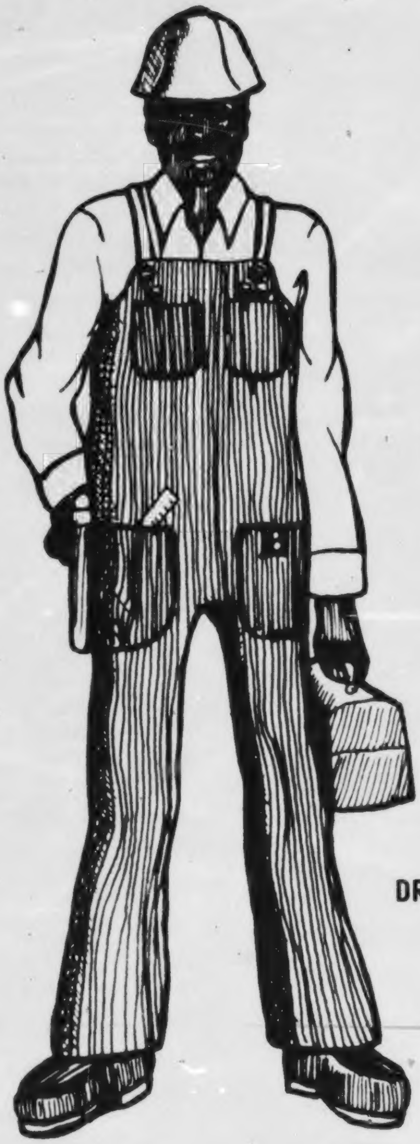
INFORMATION SHEET #4--INTERVIEW FAILURES

VIII. Reasons for not getting a job

- A. Poor grooming habits
- B. Poorly displayed personality
  - 1. Chip on shoulder
  - 2. Improper attitude toward work
  - 3. Overly emotional
  - 4. Spoke in a negative manner about previous experiences and acquaintances
- C. Late for interview
- D. Application form filled out improperly
  - 1. Didn't follow directions
  - 2. Didn't answer all questions
  - 3. Didn't write legibly
  - 4. Falsified information
- E. Poor school grades, records, and excessive absence and lateness.

APPROPRIATE DRESS FOR THE INTERVIEW-

MALE

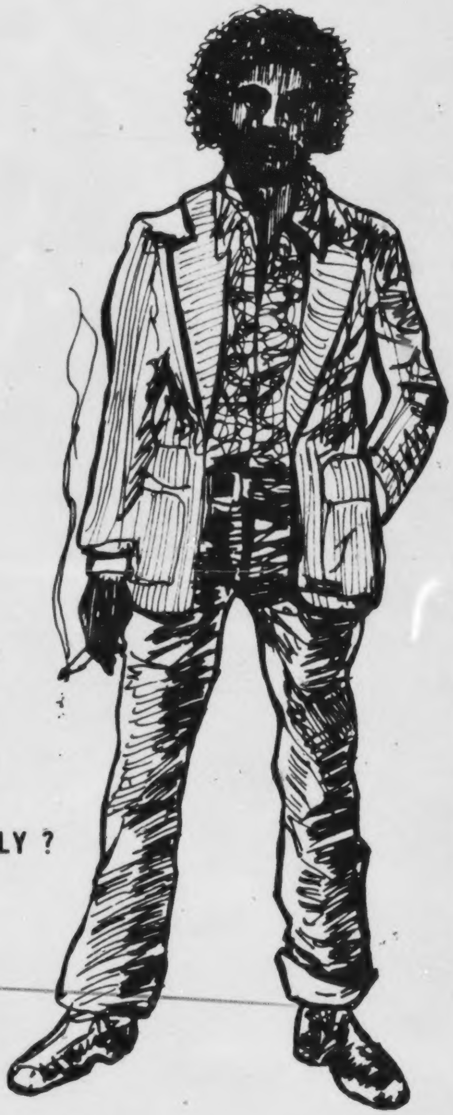


WELL GROOMED ?

GOOD ATTITUDE ?

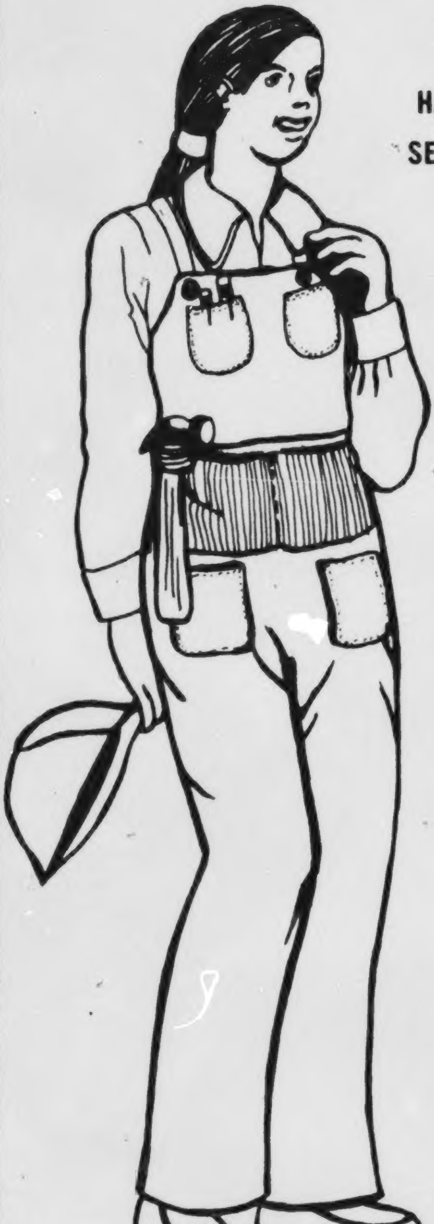
ARRIVED ON TIME ?

DRESSED APPROPRIATELY ?



APPROPRIATE DRESS FOR THE INTERVIEW-

FEMALE

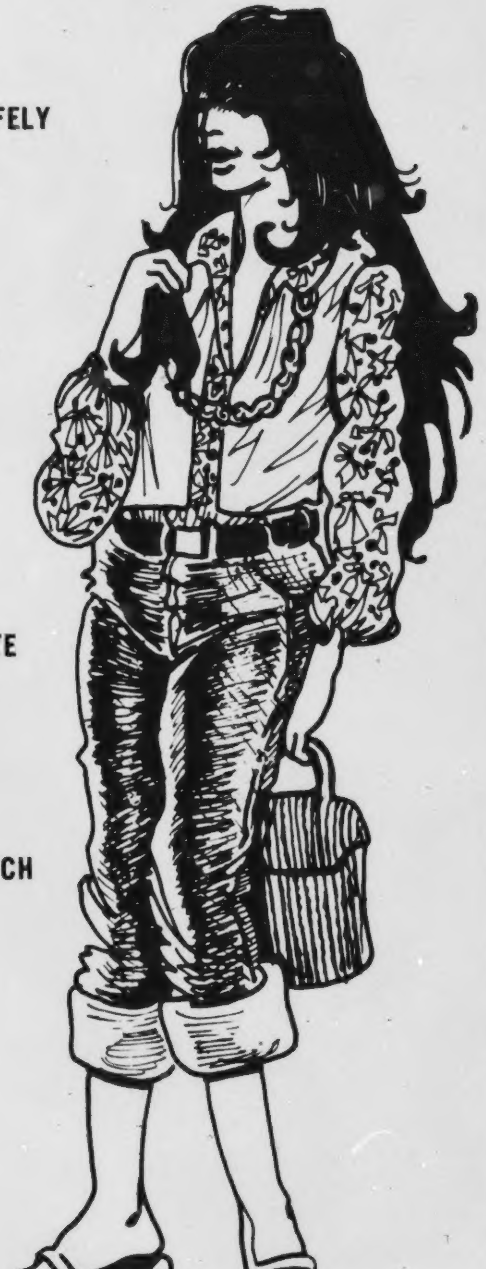


HAIR CUT SHORT OR SAFELY SECURED ?

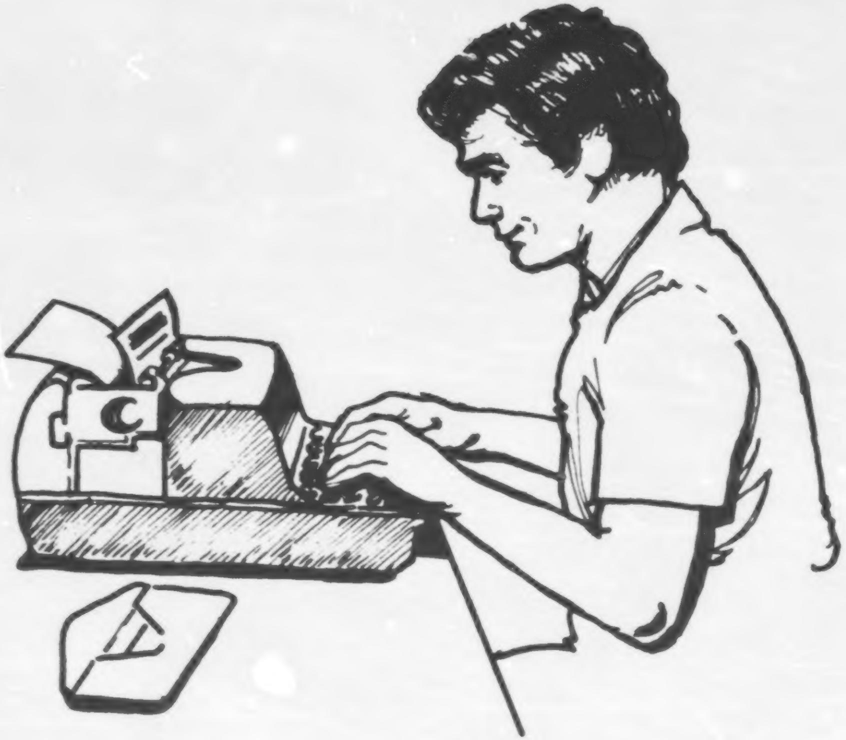
CLEAN AND NEAT ?

WEARING APPROPRIATE WORK CLOTHES ?

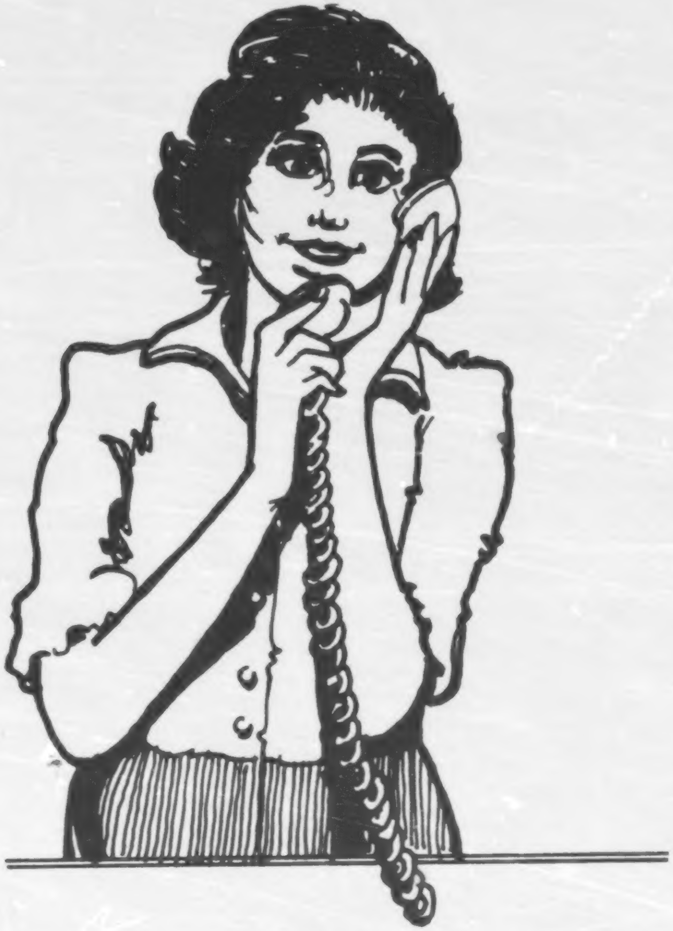
NO JEWELRY TO CATCH ON EQUIPMENT ?



METHODS OF APPLYING FOR A JOB



BY LETTER



BY TELEPHONE

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #1--WRITING A LETTER OF APPLICATION FOR EMPLOYMENT

Directions: Write a letter of application to a prospective employer,using your own choice of letter style. Use the sample letter on the next page as a guide when writing the letter.

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #2--MAKING AN APPOINTMENT BY PHONE

Directions: Using a simulated telephone situation, role-play an applicant interested in a particular job opening with the instructor role-playing the employer's receptionist. After completing the telephone conversation, complete the checklist below. If you answer "no" to any question, your conversation was not up to par and could hinder you from getting the job.

CHECKLIST	YES	NO
1. Were prepared before calling		
2. Did not stutter and stammer to find the right words		
3. Identified self immediately		
4. Relayed your purpose for calling immediately		
5. Inquired as to the best time for the interviewer to see you		
6. Were courteous and friendly		
7. Thanked the receptionist		
8. Recorded the interview date, hour, and location		

SAMPLE LETTER OF APPLICATION

444 West Washington
Anywhere, Texas 77777
January 15, 1977

Mr. James Zimmerman
Personnel Manager
Titus Corporation
222 Finale Street
Anywhere, Texas 77777

Dear Mr. Zimmerman:

Please consider me for the carpenter's helper position which your company advertised in The Gazette.

The skills I've learned in my general construction classes qualify me for the position. I have worked with many different construction, hand, and power tools. I understand the safety involved in working around construction and power tools. Our construction class has worked on construction sites in an organized and safe manner. This has given me a broad understanding of construction work. A more complete description of my qualifications is provided on my enclosed resume.

May I come for an interview at your convenience? I can be reached by telephone at 555-4444 or by mail at 444 West Washington, Anywhere, Texas, 77777.

Sincerely,

John Johnson

Enclosure

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #3--PREPARING AND WRITING A RESUME

Directions: Write a resume to include with your letter of application. Select the style of your choice or use the example on the next page as a guide.

SAMPLE VITA
RESUME
PERSONAL DATA SHEET

NAME : John Johnson

ADDRESS : 444 W. Washington
Anywhere, Texas 77777

TELEPHONE: 555-4444

EDUCATION: Senior at Blank High School to be graduated in May.

AGE :	17 yrs.	HEALTH :	Excellent
WEIGHT :	117 lbs.	MARITAL STATUS:	Single
HEIGHT :	5'6"	DATE OF BIRTH :	3-15-60

SUBJECTS STUDIED:

Science

English

General Construction Trades

Mathematics

STUDENT ACTIVITIES:

Vice-president, Vocational Opportunities Club of Texas

Member, Senior Homecoming Committee

SPECIAL SKILLS:

Can operate table saw, radial arm saw, jointer, power miter box, and other power tools.
Have used all construction hand tools in foundation, framing, and dry wall construction.
Have worked with in-shop working tools in constructing various projects.

WORK EXPERIENCE:

Helped in construction of portable buildings and worked as a helper for local carpenter.

REFERENCES:

Mr. Ted Boswell
CVAE Instructor
Blank High School
124 W. 4th
Anywhere, Texas 77777

Ms. June Jakely
Director, Summer
Amusement Center
456 W. 8th
Anywhere, Texas 77777

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #4--ANSWERING QUESTIONS THE EMPLOYER MAY ASK

Directions: In a job interview, it is your responsibility to "sell" yourself. You must be prepared to answer any questions asked in a manner that will leave a favorable impression. Select any 10 questions contained on the next sheet and write the question number and your answers to those questions in the space provided.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

QUESTIONS FREQUENTLY ASKED DURING THE EMPLOYMENT INTERVIEW

1. What are your future plans?
2. In what school activities have you participated? Which did you enjoy most?
3. How do you spend your spare time? What are your hobbies?
4. In what type of position are you most interested?
5. Why do you think you might like to work for our company?
6. What jobs have you held? How were you obtained and why did you leave?
7. What courses did you like best? Least? Why?
8. Why did you choose your particular field of work?
9. How did you spend your vacations while in school?
10. What do you know about our company?
11. Do you feel that you have received a good general training?
12. What qualifications do you have that make you feel that you will be successful in your field?
13. In what extracurricular activities have you participated?
14. What are your ideas on salary?
15. How do you feel about your family?
16. How interested are you in sports?
17. Do you prefer any specific geographic location?
18. How much money do you hope to earn at age 30? 35?
19. Why did you decide to go to this particular school?
20. Do you think that your extracurricular activities were worth the time you devoted to them?
21. What do you think determines a person's progress in a good company?

22. What personal characteristics are necessary for success in your chosen field?

23. Why do you think you would like this particular type of job?

24. What are your parents' occupations?

25. Tell me about your home life during the time you were growing up.

26. Do you prefer working with others or by yourself?

27. What kind of boss do you prefer?

28. Are you primarily interested in making money, or do you feel that service to humanity is your prime concern?

29. Can you take instructions without feeling upset?

30. Do you live with your parents? Which of your parents has had more influence on you?

31. How did previous employers treat you?

32. What have you learned from some of the jobs you have had?

33. Can you get recommendations from previous employers?

34. What interests you about our product or service?

35. Do you feel you have done the best work you could in your classes?

36. What do you know about opportunities in the field in which you were trained

37. Have you ever had any difficulty in getting along with fellow students and faculty?

38. How do you get your spending money?

39. Have you saved any money?

40. Do you like routine work?

41. Do you like regular hours?

42. What size city do you prefer?

43. What is your major weakness?

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #5--COMPLETING AN EMPLOYMENT APPLICATION FORM

Directions: Complete the application form on the following pages and use the following rules:

A. Scan the entire application form before beginning.

B. Follow the instructions on the form exactly.

C. Write legibly.

D. Use ink when writing on an application form unless specifically requested not to.

E. Provide all facts needed, but be brief.

F. Fill in all the blanks.

   1. Write "N/A" or "not applicable" for questions that don't pertain.

   2. If there is no answer, write "none."

G. Know complete addresses, titles, and phone numbers of references and former employees.

H. When finished, proofread form for accuracy.

X-32

SAMPLE
EMPLOYMENT APPLICATION FORM

PERSONAL DATA

Name ____________ Soc. Sec. No. ________ Date of Birth ________

Address ____________ City ____________ State ________

How long at the above address? ____________ Phone No. ________

Last Previous Address ________ City ________ State ________

Height ______ Weight ______ Maiden Name ________ Husband/Wife's Name ______

Husband/Wife's Occupation ________ Where employed ________

How long? ________ No. of Dependents _____ Children's Ages ________

Relationship of others ________ Single ______ Married ______

How long have you lived in this state? ______ City ________

Who should be notified in case of emergency? Name ________

Relationship ________ Address ________

City ________ State ________ Phone No. ________

Do you own a car? ________ Do you own a health card? ________

Any felony convictions? If "yes" explain ________

Have you ever been bonded? _____ Have you ever been refused bond? _____

HEALTH

What is the present condition of your health? ________

List any illnesses in the past year ________

Date of last physical ________

Do you have any physical defects? _____ Explain ________

MILITARY SERVICE

Yes ____ No ____ Branch ________ Dates: From ______ To ______

Rating upon discharge ________

Type of discharge: Honorable ______ Medical _____ Other ________

Are you a member of the National Guard? ______ Reserve ____ Active ____

Is yearly active duty required? _____ How long? ______ When ______

What is your present draft status? ________

NAME: ________

HIRED: ________

LOCATION: ________

TERM: ________

REASON: ________

REHIRE: ________

EDUCATION (CIRCLE LAST YEAR COMPLETED)

	NAME	HIGHEST YEAR COMPLETED	FROM	TO	MAJOR SUBJECTS
GRAMMAR SCHOOL		1 2 3 4 5 6 7 8			
HIGH SCHOOL		9 10 11 12			
COLLEGE		1 2 3 4 5 6			
		HOW LONG?			
OTHER		HOW LONG?			

Position requested____________________ Full Time_______ Part Time______ Hours____

Second Choice____________________________ Salary Expected____________________

If selected, when would you be available for work? ____________________________

You are not required to give any information on this form if prohibited by law.

REFERENCES (Do not use relatives or former employers)

Name	Address	Occupation
1.		
2.		

EMPLOYMENT HISTORY (Start with Most Recent Employment)

NAME and ADDRESS	TIME EMPLOYED		POSITION	SALARY		SUPERVISOR
	FROM	TO		START	LEAVING	
(1)						
PHONE NO.	REASON FOR LEAVING					
(2)						
PHONE NO.	REASON FOR LEAVING					
(3)						
PHONE NO.	REASON FOR LEAVING					
(4)						
PHONE NO.	REASON FOR LEAVING					

Date____________________ 19____ Signature____________________________

DO NOT WRITE BELOW THIS LINE

Interviewed by:________________________________ Date____________________

Remarks ____

Appearance: Attitude: Stability:

UNIT X

JOB APPLICATION AND INTERVIEW

ASSIGNMENT SHEET #6--PARTICIPATING IN AND EVALUATING JOB INTERVIEW

Directions: In a role-playing situation, you will participate in a job interview with your instructor acting out the part of the interviewer. Prepare yourself as you would for an actual job interview. After completing the job interview, evaluate the interview situation according to the following checklist by placing a "✓" in the appropriate column.

	YES	NO
APPEARANCE		
1. Clothing clean and well pressed?		
2. Clothing conservative in style?		
3. Body clean and odor-free?		
4. Hair trimmed, clean, and combed?		
5. Shoes polished?		
BEHAVIOR		
1. Greeted interviewer with a smile?		
2. Called the interviewer by name?		
3. Introduced self?		
4. Shook interviewer's hand?		
5. Sat only when asked to do so?		
6. Kept eye contact with interviewer?		
7. Listened carefully to what interviewer said?		
8. Thought questions out before answering?		
9. Spoke well of previous employers and associates?		
10. Showed desire to work?		

	YES	NO
11. Were open to new ideas?		
12. Were enthusiastic about school, work, and life in general?		
13. Asked questions about the job and the company?		
14. Were prepared to tell how you could benefit the company?		
15. Were honest in telling your qualifications and experiences?		
16. Did not chew gum, smoke, or eat candy?		
17. Answered questions briefly and to the point?		
18. Were on time for the interview?		
19. Thanked the interviewer for his/her time?		
20. Left promptly?		

If you answered "NO" to any of the above questions, your chances for getting the job are reduced.

UNIT X

JOB APPLICATION AND INTERVIEW

UNIT TEST--PART 1

1. Match the following terms with their correct definitions.

____a. applicant

____b. personal data information sheet

____c. reference

____d. marital status

____e. extracurricular activities

____f. fringe benefits

____g. qualifications

____h. vocational preparation

____i. interviewer

1. The "extras" provided by an employer
2. Indicated whether the applicant is single, married, or divorced
3. Person, rather than a relative, who can tell information about the applicant
4. Person who interviews the applicant
5. Individual applying for a job
6. The characteristics, training, schooling, and accomplishments required by an applicant for a job
7. Skills in a vocational area gained through formal schooling or work experience
8. Paper with information about applicant
9. Indicated how an applicant spends leisure-time hours

2. Place a "√" beside items of information to be included on the resume.

____a. Name, address, and phone number

____b. Salary

____c. Type of employment being sought

____d. Work experience

____e. Grades made in school

____f. Subjects studied in school

____g. Parents' occupations

____h. References

UNIT X

JOB APPLICATION AND INTERVIEW

UNIT TEST--PART 2

3. List the two methods in applying for a job.

   a.

   b.

4. Circle the letter in front of each of the following which are examples of proper dress and grooming for an interview.

   a. Blue jeans and T-shirts

   b. White socks with a black suit

   c. Teeth brushed

   d. Mouthwash used

   e. Shoes cleaned and polished

   f. Hands and nails cleaned and trimmed

   g. Hosiery with a snag or split seams

   h. Wrinkled shirt

   i. Body clean and odor-free

   j. Makeup that was applied the day before

5. Select the correct ways to prepare for an interview by answering true or false to each of the following statements.

____a. An appointment for an interview is not necessary.

____b. Know about the job being applied for.

____c. Learn about the company before you interview.

____d. You do not need to know the name of the interviewer.

____e. Review your personal qualifications.

____f. Wait until the interview to answer the interviewer's questions.

____g. Do not make the interview too long by asking questions.

____h. Interview in your work clothes so they will think you are a hard worker.

____i. Do not prepare notes on thing to remember because they will think you have a short memory.

____j. Plan to arrive late so the interviewer will think you stay busy.

UNIT X

JOB APPLICATION AND INTERVIEW

UNIT TEST--PART 3

6. Place a "√" beside those statements which are proper conduct during an interview.

____a. Never smile during an interview.

____b. Always call the interviewer by first name.

____c. Introduce self.

____d. Shake hands with the interviewer softly.

____e. Sit in a chair only after the interviewer asks you to be seated.

____f. Sit straight, but comfortable.

____g. Try to keep the lead during the conversation.

____h. Remain polite during the interview.

____i. Interrupt the interviewer anytime a question enters your mind.

____j. Keep a resume and examples of your work handy.

____k. Express ideas and view clearly.

____l. Show sincerity.

____m. Smoke during the interview, if desired.

____n. Answer questions honestly.

____o. Look for signs to indicate the interview is over.

____p. Thank the interviewer for the time allowed and leave promptly.

7. Select the positive attitudes an employer looks for during an interview by placing a "√" in front of each.

____a. Enthusiasm and interest

____b. A sense of dedication

____c. Know-it-all

____d. Sincerity

____e. Alertness

____f. Dishonesty

____g. Desire to get the easiest job

____h. Desire to improve oneself

UNIT X

JOB APPLICATION AND INTERVIEW

UNIT TEST--PART 4

8. List five reasons one may not get a job.

   a.

   b.

   c.

   d.

   e.

9. Demonstrate the ability to:

   a. Write a letter of application for employment.

   b. Role-play, making an interview appointment by phone.

   c. Prepare and write a resume.

   d. Answer questions an employer may ask during an interview.

   e. Participate in and evaluate a role-playing job interview.

   f. Complete an employment application form.

   g. Write a follow-up letter.

   (Note: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT X

JOB APPLICATION AND INTERVIEW

ANSWERS TO UNIT TEST
PART-1

1. a. 5
   b. 8
   c. 3
   d. 2
   e. 9
   f. 1
   g. 6
   h. 7
   i. 4

2. a. ✓
   b.
   c. ✓
   d. ✓
   e.
   f. ✓
   g.
   h. ✓

PART 2

3. a. Write a letter of application.
   b. Apply by telephone.

4. c.

d.

e.

f.

i.

5. a. false

b. true

c. true

d. false

e. true

f. false

g. false

h. false

i. false

j. false

PART 3

6. a.

b.

c. ✓

d.

e. ✓

f. ✓

g.

h. ✓

i.

j. ✓

PART 4

8. a. Poor grooming habits
   b. Poor personality
   c. Late for interview
   d. Application filled out improperly
   e. Poor school grades, records, and excessive absence and lateness

9. Evaluated to the satisfaction of the instructor.

UNIT I

READING PLANS AND BLUEPRINTS

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify the different views, components, and lines used on a building plan or blueprint. The student will be able to draw a building plan and point out dimensions and details on it. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Explain the purpose of a building plan or blueprint
2. List the three basic views used in drawings
3. Match the terms associated with blueprint-reading to the correct definition
4. Point out the correct use of each of the lines used in blueprint-reading
5. Demonstrate the ability to:
    a. Draw three view sketches
    b. Draw a simple floor plan

UNIT I

READING PLANS AND BLUEPRINTS

SUGGESTED ACTIVITIES

I. Instructor

- A. Discuss unit objective.
- B. Provide students with information and assignment sheets.
- C. Prepare transparencies and lesson plans.
- D. Discuss information and assignment sheets.
- E. Show students examples of various blueprints or house plans.
- F. Give test.
- G. Review problem areas identified by test.

II. Student

- A. Discuss questions of unit objective.
- B. Read and discuss information and assignment sheets.
- C. Complete assignment sheets.
- D. Discuss details shown on any blueprints or house plans.
- E. Take test.
- F. Discuss test questions missed.

INSTRUCTIONAL MATERIALS

I. Included in this unit

- A. Objective sheet
- B. Information sheet
- C. Transparency masters
  - 1. I-TM-1--Basic Views of a Drawing

    2. TM-2--Types of Lines on a Blueprint
    3. TM-3--Floor Plan of a Single-Car Garage
    4. TM-4--Elevations of a Single-Car Garage
    5. TM-5--Section Drawing of Garage Door Framing
    6. TM-6--Detail Drawing of a Cabinet
    7. TM-7--Specifications for a Single Car Garage
    8. TM-8--Door and Window Schedule

  D. Assignment sheets
    1. Assignment Sheet #1--Draw Three-View Sketches
    2. Assignment Sheet #2--Draw a Simple Floor Plan

  E. Test

  F. Answers to test

II. References:

A. Wagner, Willis H. Modern Carpentry. South Holland; Illinois: The Goodheart-Wilcox Co., 1976

B. Fundamentals of Carpentry. Chicago, Illinois: American Technical Society.

UNIT I

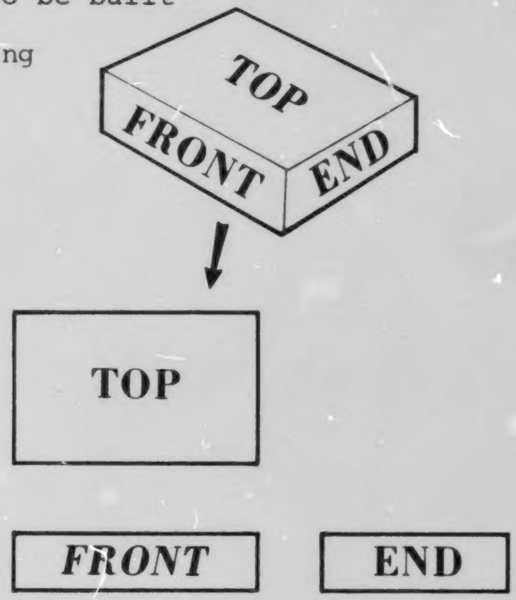
READING PLANS AND BLUEPRINTS

INFORMATION SHEET

I. Purpose of a plan or blueprint--To convey a message from the designer to the worker by showing the shape and size of the item to be built

II. Basic views of a drawing

- A. Top
- B. Front
- C. End



III. Terms and definitions

- A. Dimension--Measurements showing the size and location of the item to be built
- B. Scale--Indicates whether an object is drawn to full size, enlarged, or reduced
- C. Floor plan--The part of a building plan which shows the view that would be seen looking directly down on the flat surface of a floor or foundation. (Transparency 1)
- D. Elevation--The part of a building plan which shows the outside of the building in true proportion.

  (NOTE: It will be indicated on the drawing whether it is the front, rear, left, or right.)
- E. Section--The part of a building plan which shows a specific part of a building and describes it

in detail the size and shape of materials to be used. (Transparency 3)

F. Details--The part of a building plan shown as an elevation which shows specific parts of the building, such as cabinets or entrance halls.

G. Specifications--Written instructions to the builder containing information about materials style, workmanship, and finish for a job

H. Door and window schedules--A table or chart located on the elevation drawing which gives the symbols (number or letter) used for each type of door or window and shows the quantity, type, and size. (Transparency 6)

IV. Types of lines used on blueprints

A. Object line--Shows the outline of the part or structure being built.

B. Hidden line--Shows an edge or surface that cannot be seen from the outside of the object.

C. Extension line-- Extends the object lines so they may be dimensioned.

D. Dimension line--Points out the area a dimension or measurement is describing.

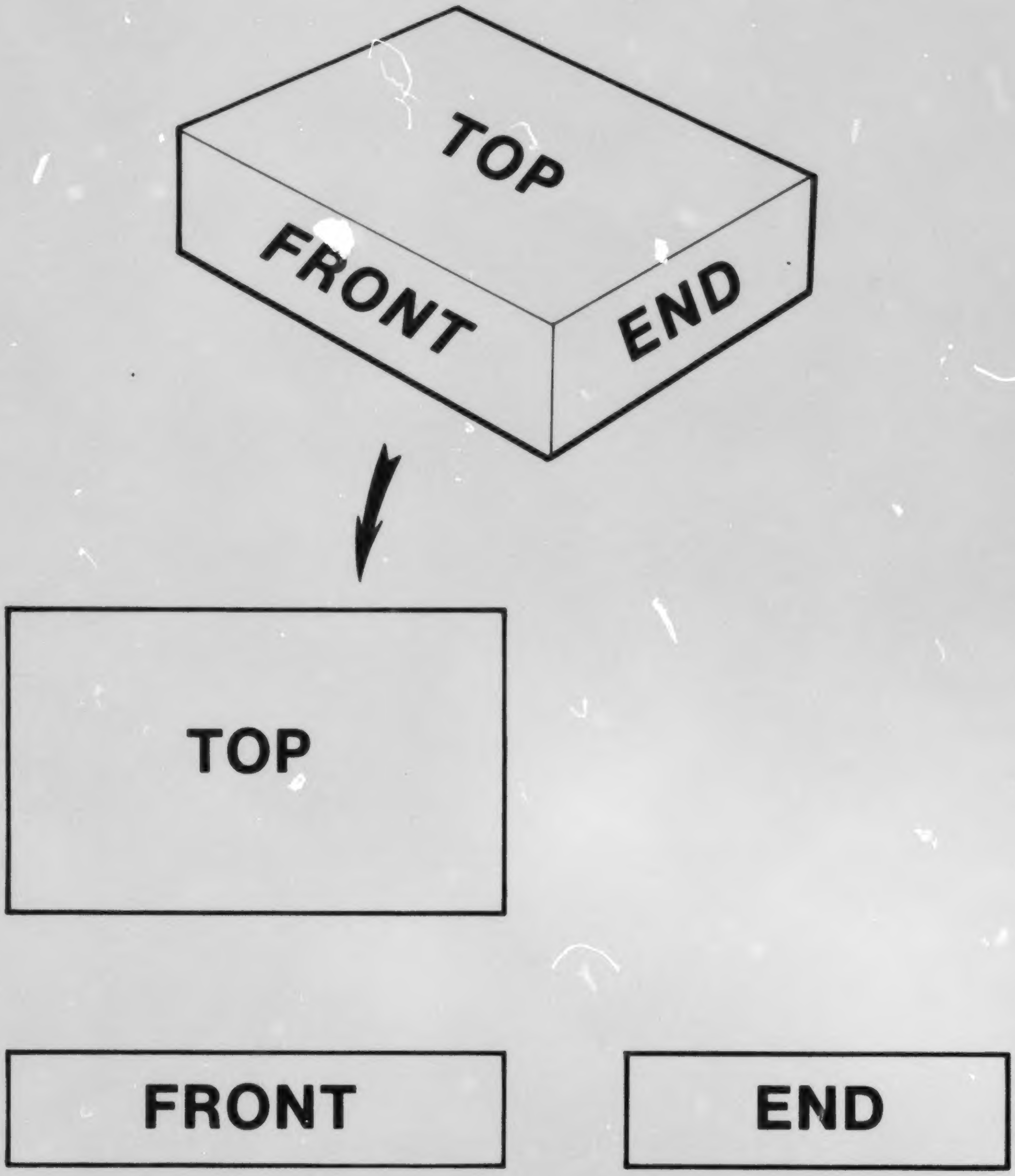
E. Center line--Shows the center of a circle or radius.

F. Cutting plane line--Shows where an object has been cut away to show interior details.

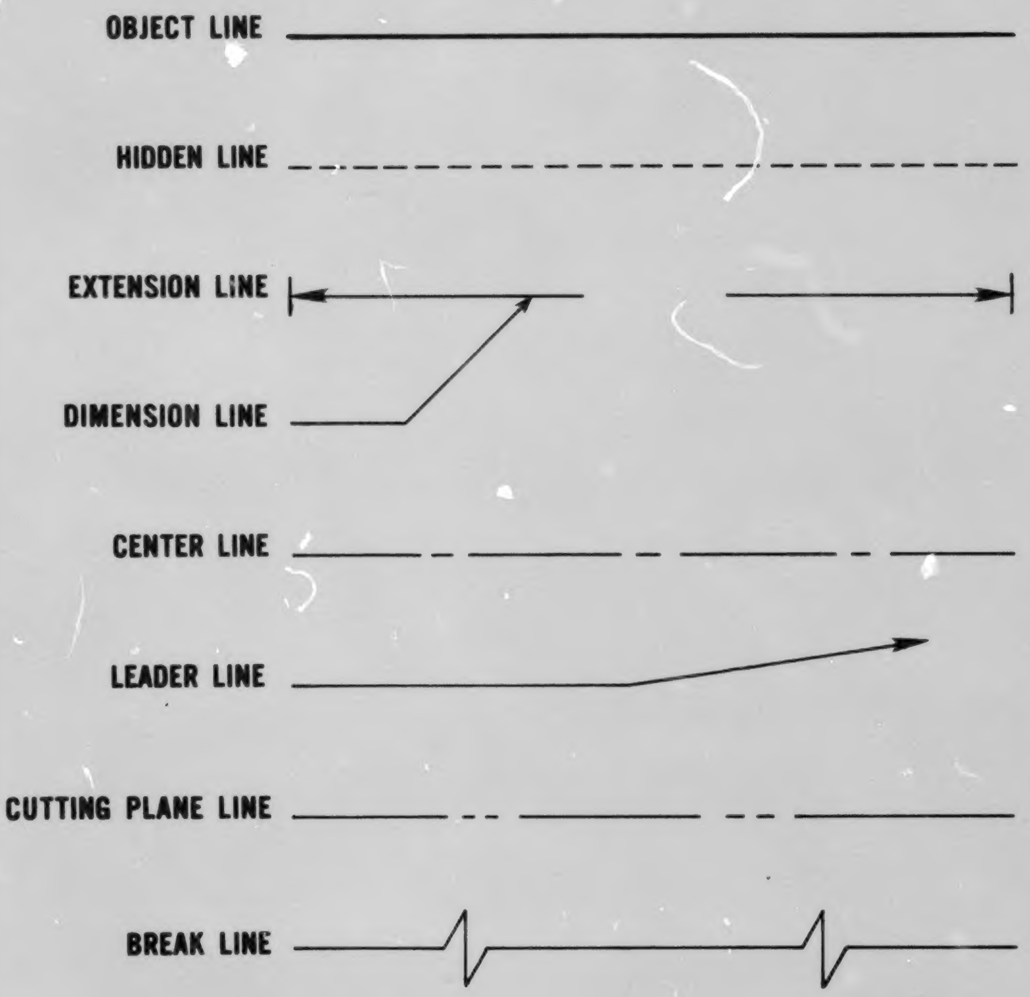
G. Break line--Shows where a part has been shortened during drawing.

H. Leader line--Used to point out a detail described by a dimension or note.

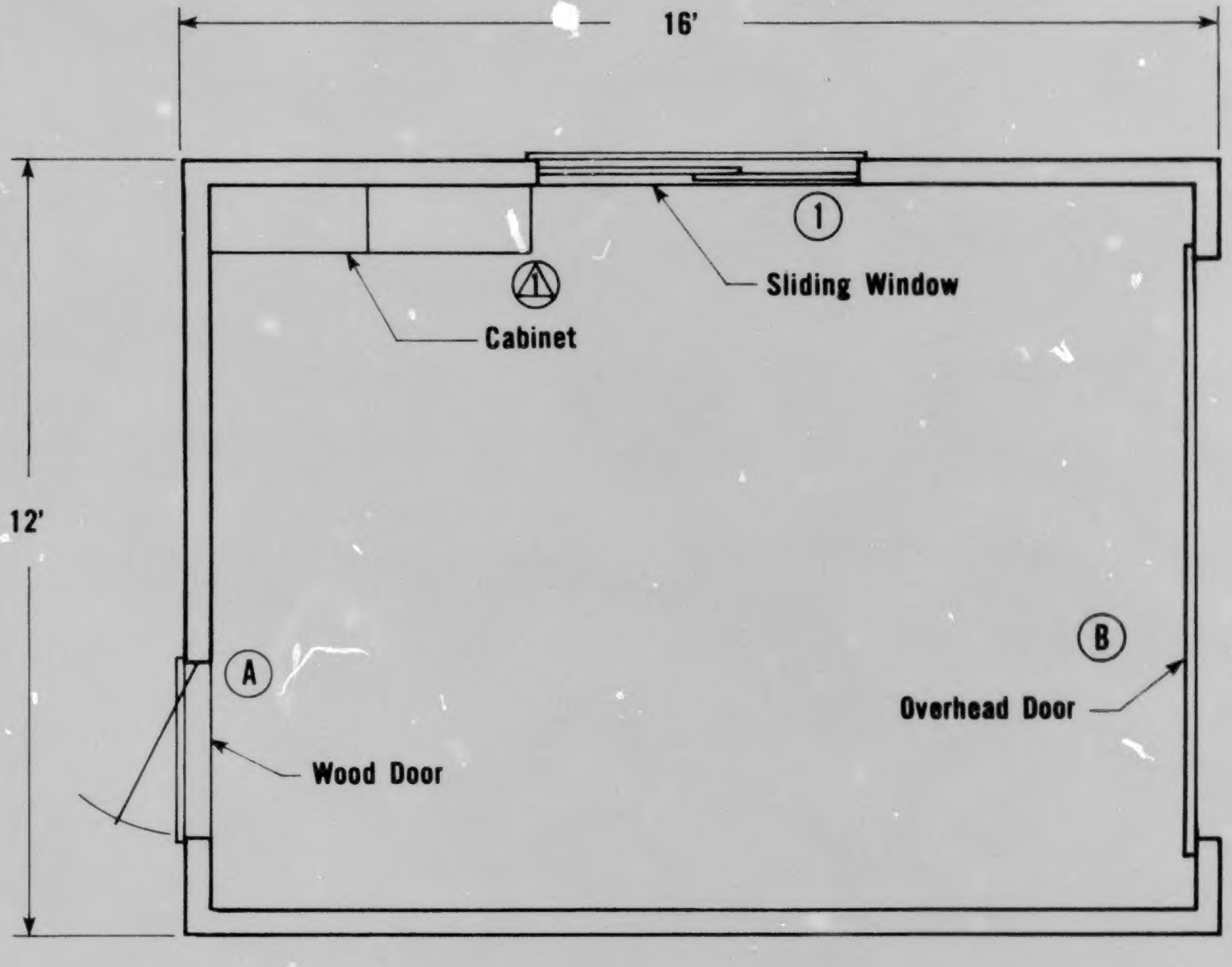
BASIC VIEWS OF A DRAWING


TOP
FRONT
END
TOP
FRONT
END

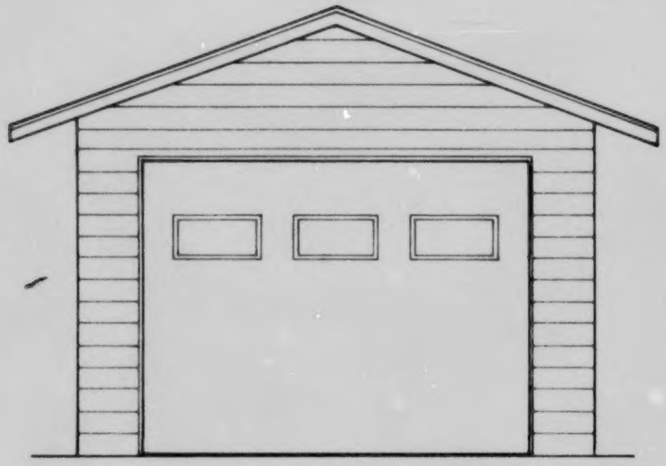
TYPES OF LINES ON A BLUEPRINT


OBJECT LINE
HIDDEN LINE
EXTENSION LINE
DIMENSION LINE
CENTER LINE
LEADER LINE
CUTTING PLANE LINE
BREAK LINE

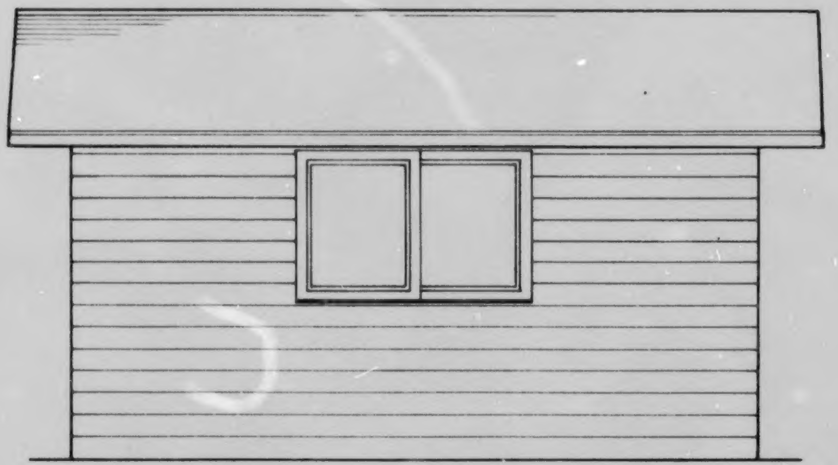
FLOOR PLAN OF A SINGLE CAR GARAGE


16'
12'
①
Sliding Window
Cabinet
1
A
Wood Door
B
Overhead Door

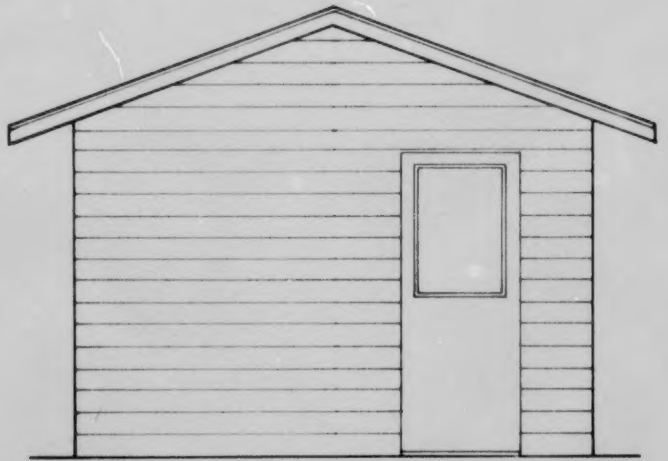
ELEVATIONS OF A SINGLE CAR GARAGE



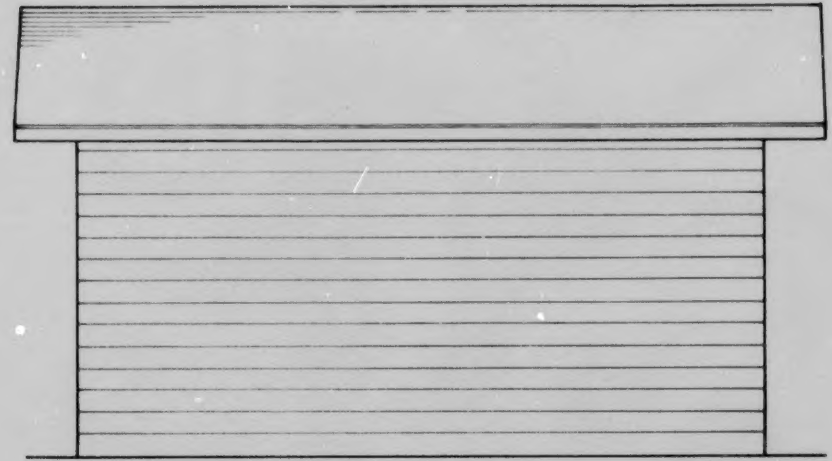
FRONT



RIGHT SIDE



REAR

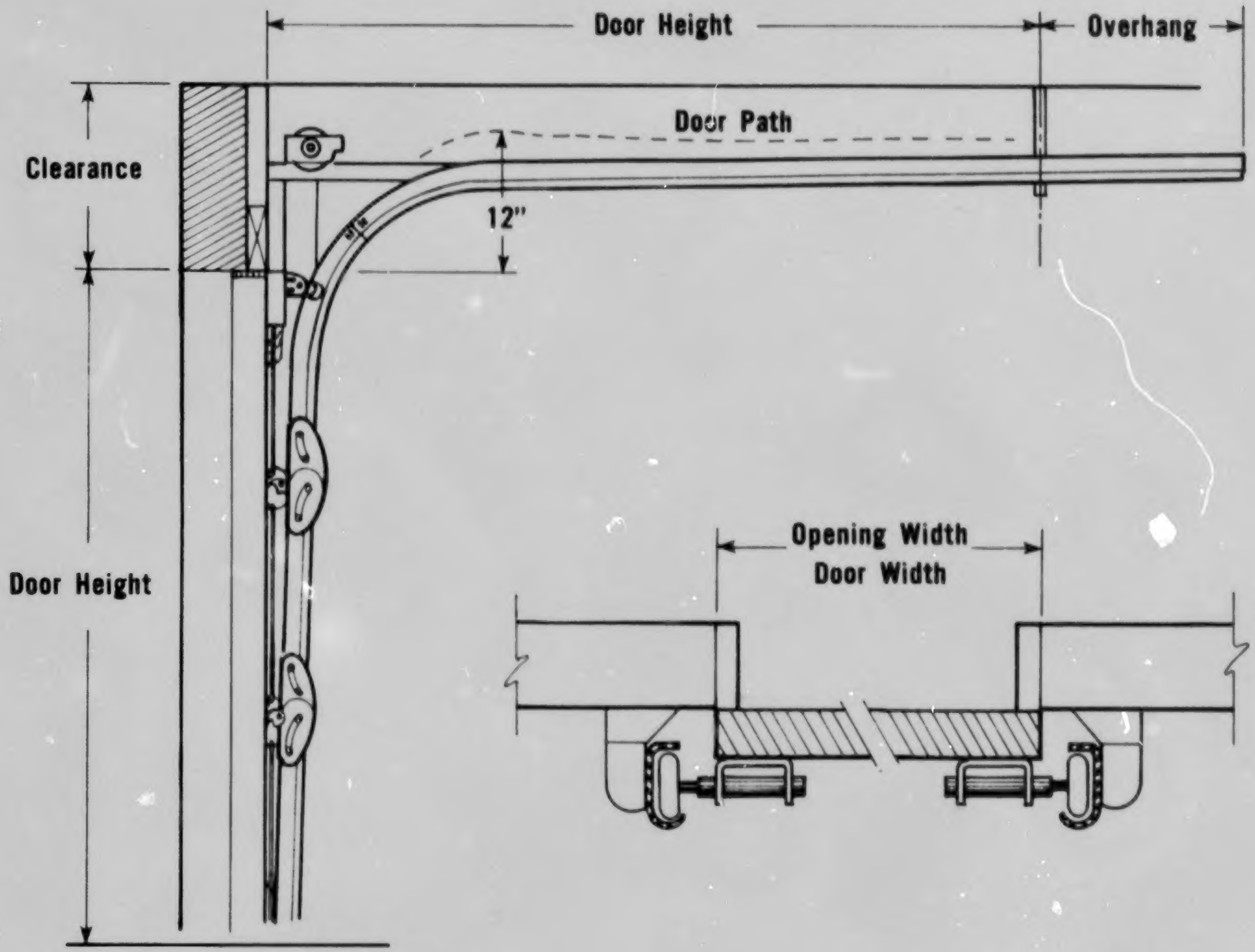


LEFT SIDE

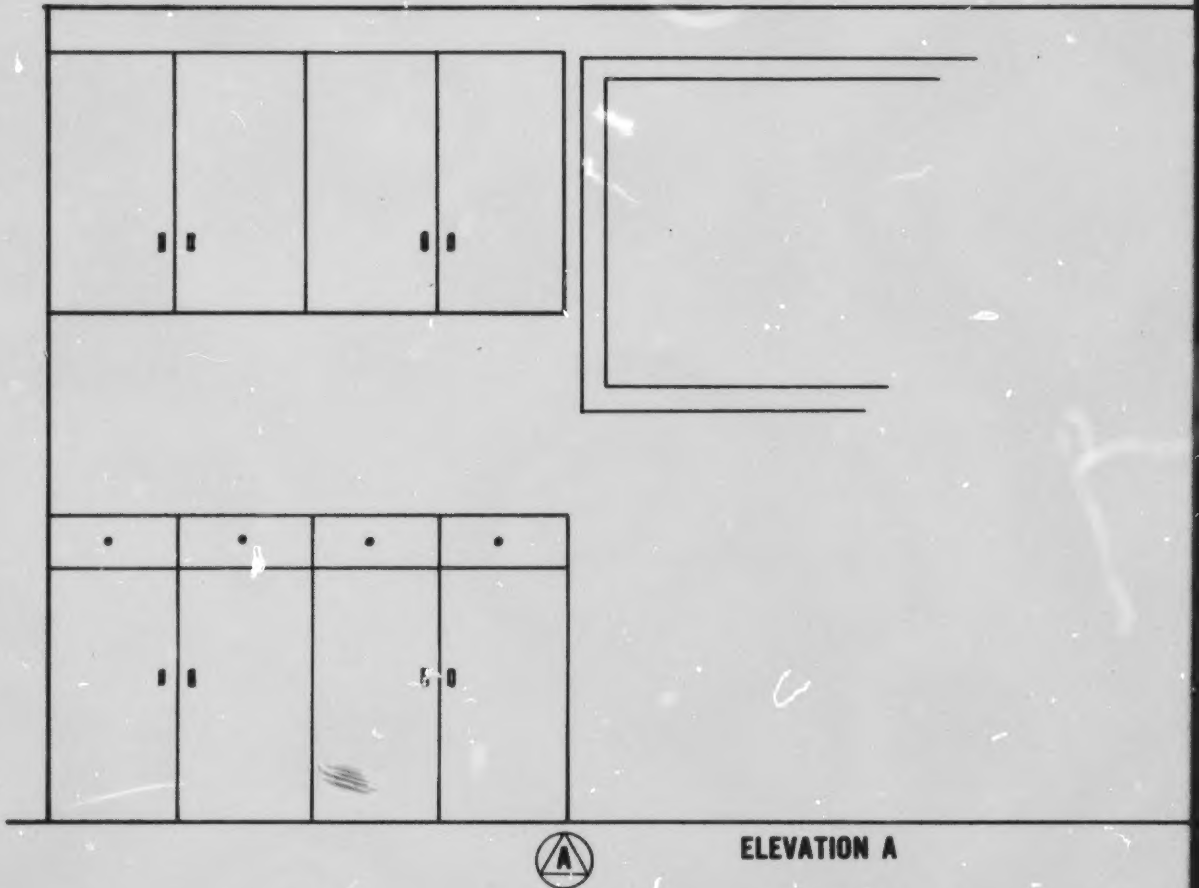
TM-4

I-13

SECTION DRAWING OF GARAGE DOOR FRAMING


Door Height
Overhang
Door Path
Clearance
12"
Door Height
Opening Width
Door Width

DETAIL DRAWING OF A CABINET



ELEVATION A

TM-6

SPECIFICATIONS FOR A SINGLE CAR GARAGE

1. Scope of Work: The contractor shall furnish all materials and labor for the construction of the following:

    - All lumber
    - Cabinet work
    - Slab foundation
    - Caulking and weather stripping
    - Carpentry labor
    - Insulation
    - Window and screen
    - Doors with hardware

2. Lumber and framing: All lumber shall be sound, well seasoned, and free of knots or other faults. All framing shall be #2 fir or yellow pine. For sizes of framing see the plans and prints.

    All joists, studding, and rafters shall be set on 16-inch centers unless specified otherwise on the drawings. All door and window openings shall be double headed and well nailed.

3. Foundation: The foundation shall be a single slab with properly constructed footings and beams. All footings shall extend at least 8 inches into undisturbed soil and be at least 10 inches thick. The slab will consist of reinforced mesh in 4 inches of 2000 PSI concrete.

4. Insulation: All exterior walls and ceilings shall be insulated with 4 inches of mineral batts from sole to top plate. The insulation shall be enclosed with a vaporproof barrier.

5. Roof sheathing or decking: The roof shall be sheathed with 5/8 inch plywood with joints on rafter centers only.

6. Roofing: Asphalt shingles of 300 pound weight shall be placed over 30-pound felt.

7. Doors: Walk-in entrance door shall be 1 3/4 inch thick and constructed of white pine. Garage door shall be overhead type complete with all hardware.

8. Window: Frames and sashes will be constructed of aluminum and be of slider type. See plans for sizes.

9. Exterior siding: All sides will be white pine lap siding. All siding should be exterior type and well nailed.

10. Caulking and weather stripping: All windows and doors shall be caulked. All doors shall be weather-stripped, and the garage door shall also have rubber weather stripping at its base.

11. Hardware: A sum of $______ shall be allowed for all finishing hardware which shall be installed by the carpenter.

12. Guarantee: This contractor shall guarantee all work installed against defects in workmanship and materials for a period of twelve months after completion of the structure. All work developing defects after that time shall be repaired at the expense of the contractor to the satisfaction of the owner.

TM-7

DOOR AND WINDOW SCHEDULE

WINDOW SCHEDULE

SYMBOL	GLASS SIZE	DESCRIPTION
①	5'-0" x 3'-0"	Aluminum Slider, 2 Lite

DOOR SCHEDULE

SYMBOL	SIZE	DESCRIPTION
Ⓐ	2'-8" x 6'-8" x 0'-1¾"	Wood Exterior
Ⓑ	7'-0" x 9'-0"	Overhead Garage, 4 Lite

UNIT I

READING PLANS AND BLUEPRINTS

ASSIGNMENT SHEET #1--DRAW THREE-VIEW SKETCHES

Directions: Draw a three-view sketch of blocks using the following dimensions. Use extension and dimension lines to show sizes.

A. 6" long, 4" wide, and 2" thick

B. 3½" long, 1" wide, and ½" thick

UNIT I

READING PLANS AND BLUEPRINTS

ASSIGNMENT SHEET #2--DRAWING A SIMPLE FLOOR PLAN

Directions: Draw a simple floor plan of a small building using the correct types of lines. Draw in the correct dimensions and details. Include a window and a door or other features.

UNIT I

READING PLANS AND BLUEPRINTS

UNIT TEST

1. Explain the purpose of a building plan or blueprint.

2. List the three basic views used in drawings.

   a.

   b.

   c.

3. Match the terms associated with blueprint reading to the correct definition. Place the number of each term in the correct blank.

____a. Measurements showing the sizes and locations of the item to be built

____b. Indicates whether an object is drawn to full size, enlarged, or reduced

____c. The part of a building plan which shows the view that would be seen looking directly down on the flat surface of a floor or foundation

____d. The part of a building plan which shows the outside of the building in true proportion

____e. The part of a building plan which shows a specific part of a building and describes in detail the size and shape of materials to be used

1. Elevation
2. Door and window schedules
3. Section
4. Details
5. Specifications
6. Dimensions
7. Floor plan
8. Scale

______ f. The part of a building plan shown as an elevation which shows specific parts of the building such as cabinets or entrance halls.

______ g. Written instructions to a builder containing information about the materials, style, worksmanship, and finish for a job

______ h. A table or chart, located on the elevation of the drawing, which gives the symbols used for each type of door or window and shows the quantity, type, and size.

4. Point out the correct use of each of the lines used in blueprint reading by writing the correct number in each of the blanks.

______ a. Objective line

______ b. Hidden line

______ c. Extension line

______ d. Dimension line

______ e. Center line

______ f. Cutting plane lines

______ g. Break line

______ h. Leader line

1. Shows where an object has been cut away to show interior details.
2. Points out the area a dimension or measurment is describing.
3. Extends the object lines so they may be dimensioned.
4. Shows the outline of the part or structure being built.
5. Used to point out a detail described by a dimension or note.
6. Shows an edge or surface that cannot be seen from the outside of the objects.
7. Shows where an object has been shortened during drawing.
8. Shows the center of a circle or radius.

5. Demonstrate the ability to:

   a. Draw three-view sketches.

   b. Draw a simple floor plan of a small building.

   (NOTE: If these activities have not been accomplished prior to the test, ask the instructor when they should be completed.)

UNIT I

READING PLANS AND BLUEPRINTS

ANSWERS TO UNIT TEST

1. Explanation should include:

   A building plan or blueprint conveys a message from the designer to the worker, showing the shape and size of the item to be built.

2. a. Top
   b. Front
   c. End

3. a. 6
   b. 8
   c. 7
   d. 1
   e. 3
   f. 4
   g. 5
   h. 2

4. a. 4
   b. 6
   c. 3
   d. 2
   e. 8
   f. 1
   g. 7
   h. 5

5. Evaluated to the satisfaction of the instructor.

UNIT II

SELECTION AND STORAGE OF MATERIALS

UNIT OBJECTIVE

After completion of this unit, the student will be able to select the different materials for construction using the proper terms and be able to properly store the materials. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with the selection and storage of materials to the correct definition
2. Select the different hardwoods used in finish work
3. Select the different softwoods used for framing and fencing
4. List the types of details to consider when selecting plywood
5. Select the proper trade terms for different sizes of materials
6. Select the correct methods for storing materials on a job site
7. Select the correct methods for storing materials inside a building
8. Demonstrate the ability to:
    a. Determine sizes of standard lumber
    b. Figure board-feet

UNIT II

SELECTION AND STORAGE OF MATERIALS

SUGGESTED ACTIVITIES

I. Instructor:

   A. Discuss unit objective.

   B. Provide students with information and assignment sheets.

   C. Prepare transparencies and lesson plans.

   D. Discuss information and assignment sheets.

   E. Show students examples of various kinds and sizes of building materials.

   F. Have students complete assignment sheets.

   G. Give test.

   H. Review problem areas pointed out by the test.

II. Student:

   A. Discuss any questions of unit objective.

   B. Read and discuss information and assignment sheets.

   C. Complete assignment sheets.

   D. Discuss the different kinds, uses, and sizes of building materials.

   E. Take test.

   F. Discuss test questions missed.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objectives

   B. Information sheet

C. Transparency masters

   1. TM-1--Plywood

   2. TM-2--Properly Stored Materials

D. Assignment sheets

   1. Assignment Sheet #1--Determine Sizes of Standard Lumber

   2. Assignment Sheet #2--Figuring Board-Feet

E. Test

F. Answers to test

II. References

A. Wagner, Willis H. *Modern Carpentry*. South Holland, Illinois: The Goodheart-Wilcox Co., 1976.

B. *Fundamentals of Carpentry*. Chicago, Illinois: American Technical Society.

UNIT II

SELECTION AND STORAGE OF MATERIALS

INFORMATION SHEET--SECTION 1

I. Terms and definitions

A. Yard lumber--Lumber intended for general building purposes and less than five (5) inches thick

B. Boards--Yard lumber less than one (1) inch thick and at least three and one-half (3 1/2) inches in width

C. Board-foot--A piece of lumber one (1) inch thick, twelve (12) inches wide, and twelve (12) inches long

D. Linear foot--A piece of lumber one foot in length and any width

E. Square foot--Any twelve (12) inches by twelve (12) inches flat surface

F. Dimension lumber--Yard lumber which is at least one and one-half (1 1/2) inches thick and not less than three and one-half (3 1/2) inches wide

G. Matched lumber--Lumber which has been worked with a tongue on one end and a matching groove on the other end

H. Rough lumber--Lumber that has been sawed, edged, and trimmed but not surfaced

I. Kiln-dried--Process used to dry lumber using controlled heat and humidity to a specified moisture content.

J. Particle board--A processed wood made from dry wood chips, bonded with a resin glue under heat and pressure

K. Plywood--A building material made of two (2) or more thin sheets of wood glued together, with the grains of the sheets placed crossways of each other.

(NOTE: Plywood comes in different grades and thicknesses.)

UNIT II

SELECTION AND STORAGE OF MATERIALS

INFORMATION SHEET--SECTION 2

II. Hardwoods

(NOTE: Used for cabinets, other finish work)

- A. Oak
- B. Birch
- C. Maple

III. Softwoods

(NOTE: Used for framing, fencing, and some trim)

- A. Fir
- B. Cedar
- C. Pine

IV. Plywoods

- A. Grades
    - 1. A
    - 2. B
    - 3. C
    - 4. D
- B. Sizes
    - 1. Each sheet is four (4) feet by eight (8) feet (4' x 8')
    - 2. 1/4 inch thickness
    - 3. 3/8 inch
    - 4. 1/2 inch
    - 5. 5/8 inch
    - 6. 3/4 inch

C. Glues
  1. Interior (inside)
  2. Exterior (outside)

V. Material sizes
  A. Boards
    1. 1" x 4"
    2. 1" x 6"
    3. 1" x 8"
    4. 1" x 10"
    5. 1" x 12"
  B. Dimension lumber
    1. 2" x 4"
    2. 2" x 6"
    3. 2" x 8"
    4. 2" x 10"
    5. 2" x 12"
  C. Timbers
    1. 4" x 4"
    2. 4" x 6"
    3. 4" x 8"
    4. 6" x 10"
    5. 8" x 12"

UNIT II

SELECTION AND STORAGE OF MATERIALS

INFORMATION SHEET--SECTION 3

VI. On-site storage

   A. Stack on level ground

   B. Place on supports or skids

   C. Stack flat

   D. Stock the same sizes together

   E. Cover with a waterproof material or tarp

   F. Protect from vandalism, when possible

VII. Inside storage

   A. Keep in a well ventilated, dry place

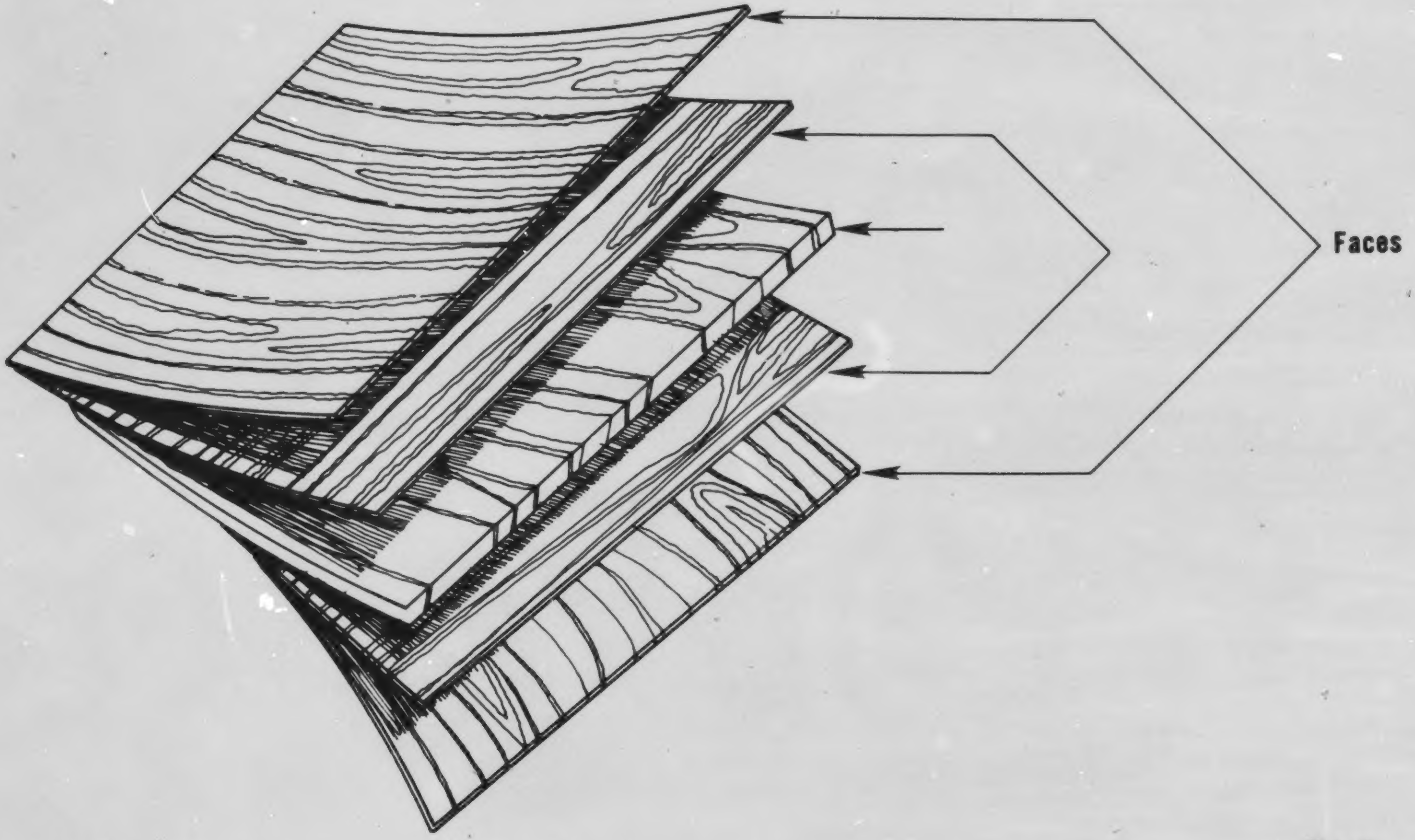
   B. Stack same sizes together

   C. Place on supports

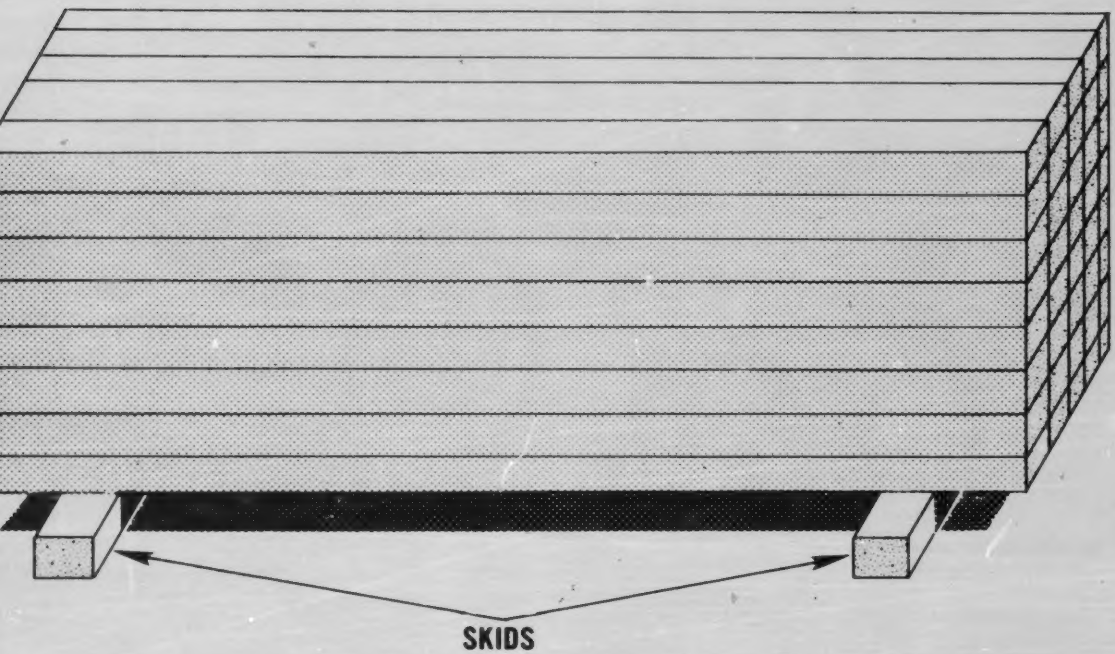
   D. Stack flat

   E. Separate layers with supports or blocks

PLYWOOD



PROPERLY STORED MATERIALS



UNIT II

SELECTION AND STORAGE OF MATERIALS

ASSIGNMENT SHEET #1--DETERMINE THE SIZES OF STANDARD LUMBER

Directions: Measure each of the following standard pieces of lumber provided by your teacher and write down the measurement to the closest 1/8 inch. (NOTE: You will find each piece is not an exact size.) (Example: A 1 x 4 board is only 3/4" x 3 5/8")

1. 1 x 4
2. 1 x 6
3. 1 x 8
4. 1 x 10
5. 1 x 12
6. 2 x 4
7. 2 x 6
8. 2 x 8
9. 2 x 10
10. 2 x 12

UNIT II

SELECTION AND STORAGE OF MATERIALS

ASSIGNMENT SHEET #2--FIGURING BOARD-FEET

Directions: Use the formula shown below to figure the number of board-feet for each problem below.

Formula: Multiply the number of pieces of lumber times the thickness times the width times the length and then divide this by twelve.

$$\text{Board Feet} = \frac{\text{(Q) Quantity x (T) Thickness x (W) Width x (L) Leng.}}{12}$$

Example: 2 pieces - 1 x 4 - 4 foot long

$$\frac{2 \times 1 \times 4 \times 4}{12} = \frac{32}{12} = 2\,\frac{8}{12} = 2\ 2/3 \text{ board-feet}$$

	Quantity	Lumber Size	Length	Board-Feet
1.	2	1" x 4"	3'	
2.	1	1" x 12"	2'	
3.	1	2" x 4"	6'	
4.	5	2" x 6"	10'	
5.	12	2" x 12"	10'	
6.	20	2" x 4"	14'	
7.	4	2" x 10"	36'	
8.	24	2" x 6"	16'	
9.	100	2" x 12"	2'	
10.	32	2" x 8"	20'	

UNIT II

SELECTION AND STORAGE OF MATERIALS

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 3/4" x 3 5/8"
2. 3/4" x 5 5/8"
3. 3/4" x 7 1/2"
4. 3/4" x 9 1/2"
5. 3/4" x 11 1/2"
6. 1 5/8" x 3 5/8"
7. 1 5/8" x 5 5/8"
8. 1 5/8" x 7 1/2"
9. 1 5/8" x 9 1/2"
10. 1 5/8" x 11 1/2"

Assignment Sheet #2

1. 2
2. 2
3. 4
4. 50
5. 24
6. 186 2/3
7. 240
8. 384
9. 400
10. 853 1/3

UNIT II

SELECTION AND STORAGE OF MATERIALS

UNIT TEST--SECTION 1

1. Match the terms associated with the selection and storage of materials to the correct definition. Place the number of each term in the correct blank.

____a. Yard lumber less than one inch thick and at least three and one-half inches in width

____b. Lumber intended for general building purposes and is less than five inches thick

____c. A piece of lumber one inch thick, twelve inches wide, and twelve inches long

____d. A piece of lumber one foot in length, and any width

____e. Any twelve inches by twelve inches flat surface

____f. Yard lumber which is at least one and one-half inches thick and not less than three and one-half inches wide

____g. Lumber which has been worked with a tongue end and a matching groove on the other end

____h. Lumber that has been sawed, edged, and trimmed, but not surfaced

____i. Process used to dry lumber to a specified moisture content using controlled heat and humidity

1. Matched lumber
2. Boards
3. Rough lumber
4. Plywood
5. Linear foot
6. Kiln-dried
7. Particle board
8. Square foot
9. Yard lumber
10. Dimension lumber
11. Board feet

_____ j. A processed wood made from dry wood chips, bonded with a resin glue under heat and pressure

_____ k. A building material made of two or more thin sheets of wood glued together with the grains of the sheets placed crossways of each other

UNIT II

SELECTION AND STORAGE OF MATERIALS

UNIT TEST--SECTION 2

2. Select the different hardwoods used in finish work from the list below. Place a ✓ in front of each hardwood.

____a. Oak

____b. Pine

____c. Birch

____d. Maple

____e. Cedar

3. Select the different softwoods used for framing and fencing from the list below. Place a ✓ in front of each softwood.

____a. Fir

____b. Cedar

____c. Pine

____d. Birch

____e. Oak

4. List the types of details to consider when selecting plywood.

Grades	Thickness	Glues
a.	a.	a.
b.	b.	b.
c.	c.	
d.	d.	
	e.	

5. Select the proper trade terms for different sizes of materials by writing one of the terms listed below by each group of sizes.

Boards
Dimension lumber
Timbers

_____________________a. 2" x 4"

2" x 6"

2" x 8"

_____________________b. 1" x 4"

1" x 6"

1" x 12"

_____________________c. 4" x 8"

6" x 10"

4" x 4"

UNIT II

SELECTION AND STORAGE OF MATERIALS

UNIT TEST--SECTION 3

6. Select the correct methods for storing materials on the job site by answering true or false to each of the following statements.

    ____a. Stack material on level ground.

    ____b. Place material on supports or skids.

    ____c. Stack material at an angle or leaning on something.

    ____d. Stack lumber with several sizes together.

    ____e. Cover material with a waterproof material or tarp.

    ____f. Protect materials from vandalism when possible.

7. Select the correct methods for storing materials inside a building by answering true or false to each of the following statements.

    ____a. Keep materials in an unventilated area.

    ____b. Stack the same sizes together.

    ____c. Place materials on supports.

    ____d. Stack materials flat.

    ____e. Separate layers with supports or blocks.

8. Demonstrate the ability to:

    a. Determine sizes of standard lumber.

    b. Figure board feet.

UNIT II

SELECTION AND STORAGE OF MATERIALS

ANSWERS TO UNIT TEST

SECTION 1

1. a. 2
   b. 9
   c. 11
   d. 5
   e. 8
   f. 10
   g. 1
   h. 3
   i. 6
   j. 7
   k. 4

SECTION 2

2. a
   c
   d

3. a
   b
   c

4.

Grades	Thickness	Glues
a. A	a. 1/4	a. Interior
b. B	b. 3/8	b. Exterior
c. C	c. 1/2	
d. D	d. 5/8	
	e. 3/4	

5. a. Dimension lumber
   b. Boards
   c. Timbers

SECTION 3

6. a. True
   b. True
   c. False
   d. False
   e. True
   f. True

7. a. False
   b. True
   c. True
   d. True
   e. True

8. Evaluated to the satisfaction of the instructor.

UNIT III

WALL LAYOUT

UNIT OBJECTIVE

After completion of this unit, the student will be able to properly lay out a wall with rough openings, and communicate using the proper terminology. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with wall layout to the correct definition
2. Identify each of the parts of a wall
3. Point out the correct rules to follow when laying out walls
4. Name the two types of rough openings in a wall
5. Demonstrate the ability to lay out a wall

UNIT III

WALL LAYOUT

SUGGESTED ACTIVITIES

I. Instructor:

  A. Discuss unit objective

  B. Provide student with information and job sheets

  C. Prepare transparencies and lesson plans

  D. Discuss information and job sheets

  E. Demonstrate the procedures outlined in the job sheet

  F. Have students perform procedures in laying out a wall

  G. Give test

  H. Review problem areas pointed out by the test

II. Student:

  A. Discuss any questions of the unit objective

  B. Read and discuss information and job sheets

  C. Complete job sheet

  D. Take test

  E. Discuss questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective

  B. Information sheets

  C. Transparency masters

    1. TM-1--Wall Framing

    2. TM-2--Corner Framing

3. TM-3--"T" Framing

D. Job Sheet #1--Layout a Wall

E. Test

F. Answers to test

II. References:

A. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Gooheart-Wilcox Co., 1976.

B. Fundamentals of Carpentry. Chicago, Illinois: American Technical Society.

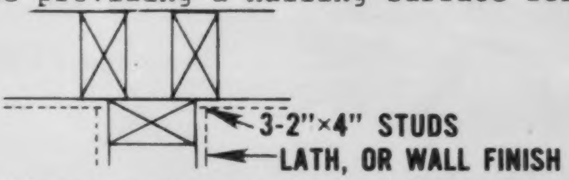
UNIT III

WALL LAYOUT

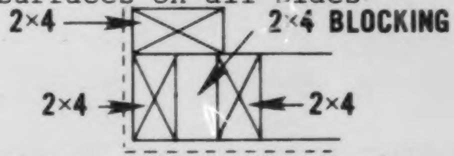
INFORMATION SHEET--SECTION I

I. Terms and definitions

A. "T" or wall intersection--Three studs and three blocks constructed to form two walls joining at a 90° angle providing a nailing surface for five walls



B. Corner--Three studs and three blocks constructed to form two walls joining at a 90° angle, providing nailing surfaces on all sides



C. Stud--A piece of dimension lumber (2x4 or 2x6) used to form the upright members of wall framing

D. Header--The framing member in a wall over a door or window

(NOTE: It is usually a 2x6 or 2x12)

E. Trimmer--The framing member on either side of a door or window opening on which the headers sit

F. Cripple--Dimension lumber used above and below the rough window openings to add strength to the wall and provide nailing surfaces

G. Bottom plate--The bottom portion of a wall running horizontally onto which studs are nailed and then secured to the floor

H. Top plate--The top piece of a wall to which the studs are nailed

I. Double plate--An extra piece of lumber placed on the top of the top plate to add strength and keep the wall straight

(NOTE: Double plates are also used to attach one wall to another.)

UNIT III

WALL LAYOUT

INFORMATION SHEET--SECTION 2

II. Parts of a wall

   A. Studs

   B. Corners

   C. "T"s

   D. Trimmers

   E. Cripples

   F. Headers

   G. Sole or bottom plate

   H. Top plate

   I. Double plate

   J. Doors

   K. Windows

III. Layout rules

   A. Layout bottom and top plates at the same time

   B. Never run your hands along the edges of the plates

   C. Be sure of the location of the first stud

   D. Mark entire length of wall for studs location

   E. Mark location for rough openings

   F. Mark locations of "T"s and corners

IV. Types of rough openings

   A. Doors

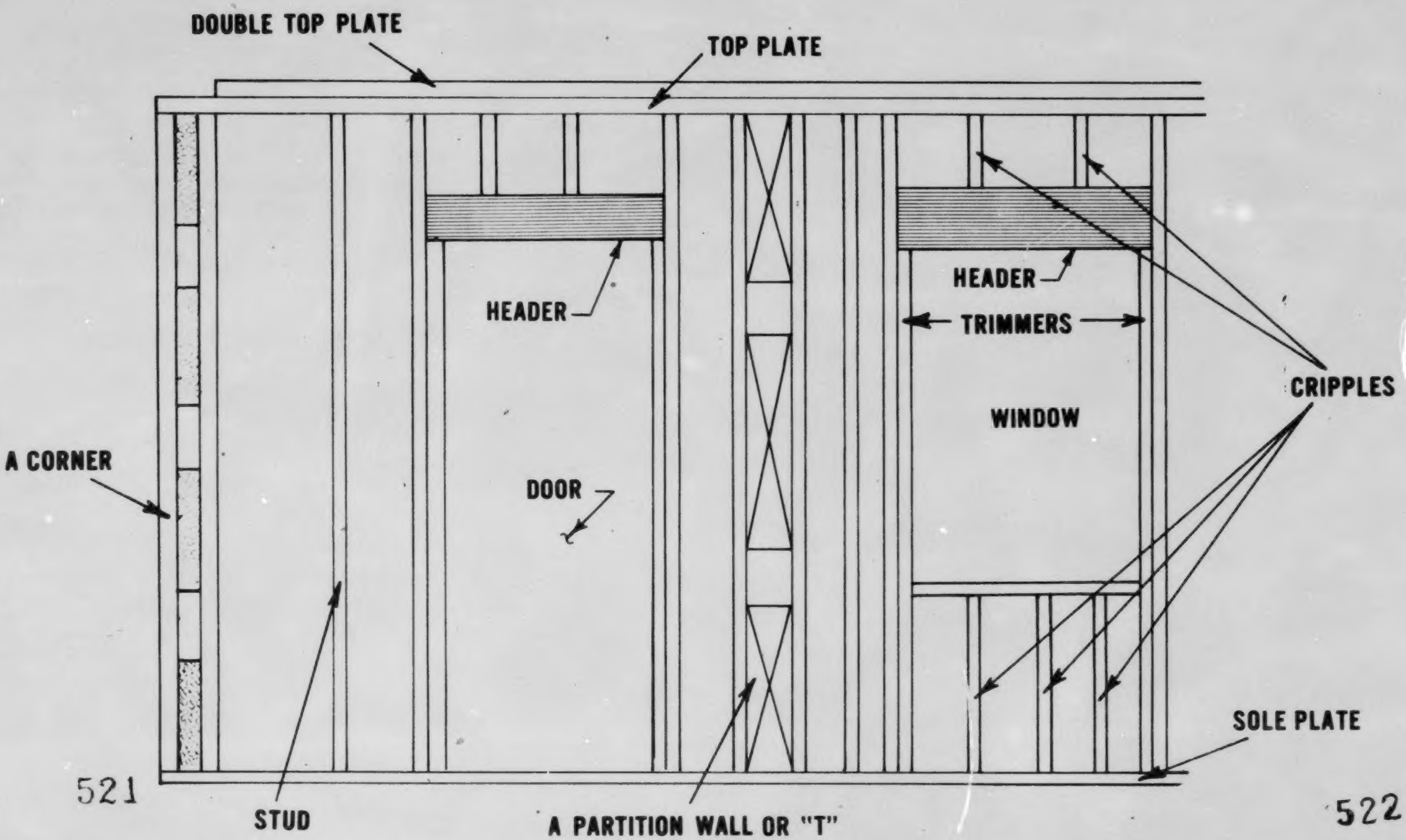
      1. Allow for door jambs during layout

      2. Allow for proper alignment

B. Windows

1. Aluminum
2. Wood
3. Plate glass

WALL FRAMING


DOUBLE TOP PLATE
TOP PLATE
HEADER
HEADER
TRIMMERS
CRIPPLES
WINDOW
A CORNER
DOOR
SOLE PLATE
STUD
A PARTITION WALL OR "T"

521

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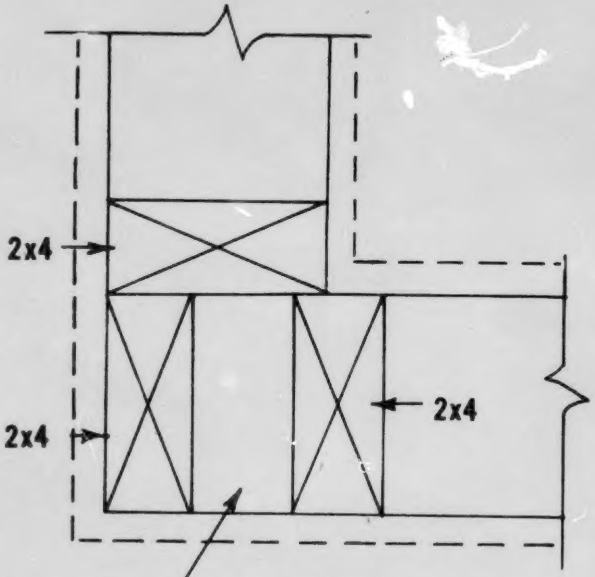
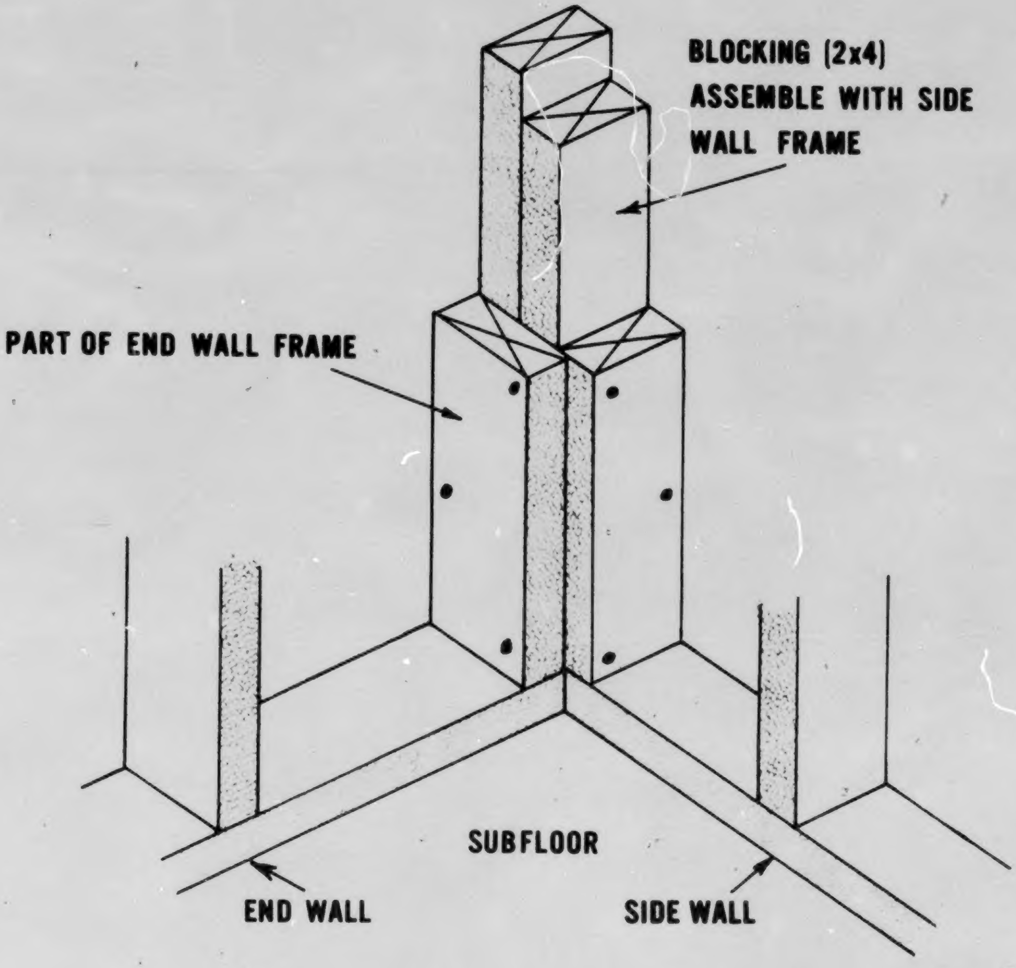
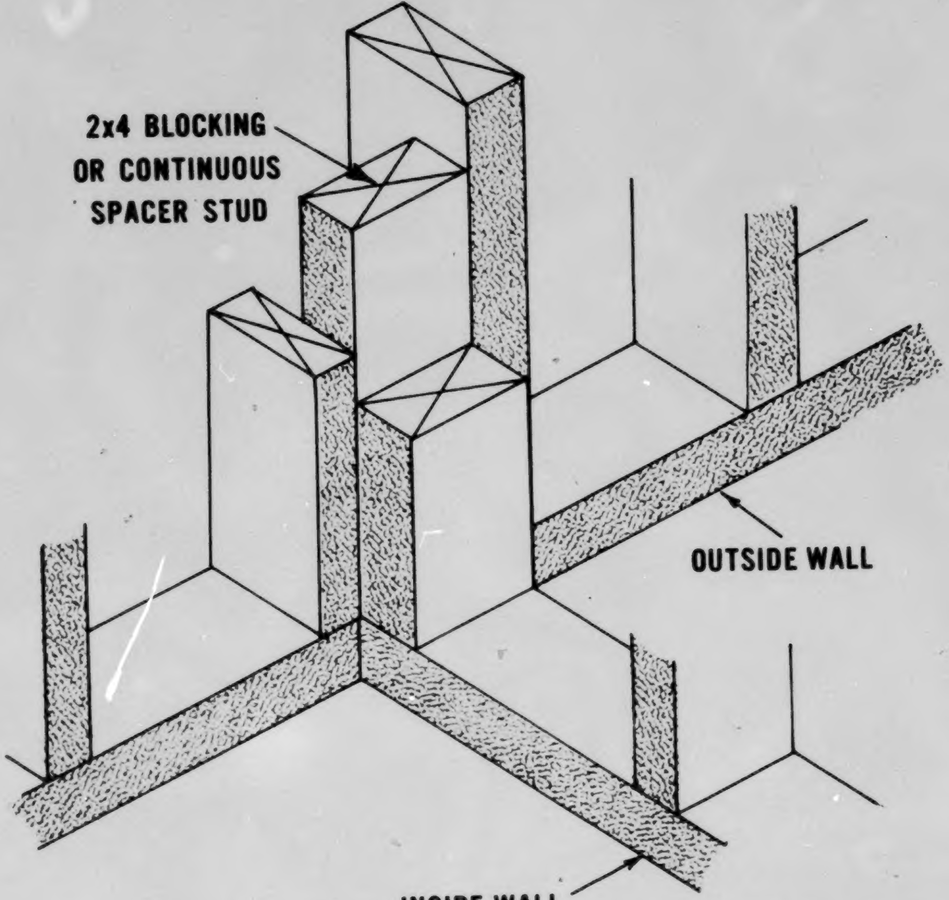
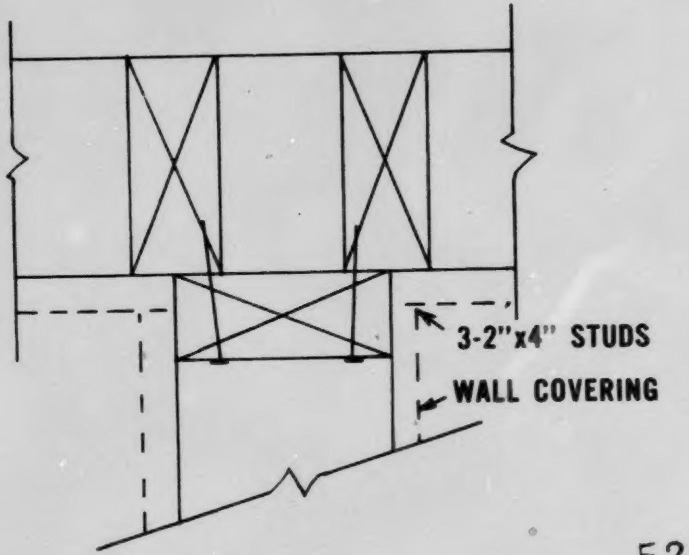
CORNER FRAMING


2x4
2x4
2x4
2x4 BLOCKING


BLOCKING (2x4)
ASSEMBLE WITH SIDE
WALL FRAME
PART OF END WALL FRAME
SUBFLOOR
END WALL
SIDE WALL

"T"-FRAMING


2x4 BLOCKING
OR CONTINUOUS
SPACER STUD
OUTSIDE WALL
INSIDE WALL


3-2"x4" STUDS
WALL COVERING

UNIT III

WALL LAYOUT

JOB SHEET #1--LAYOUT A WALL

I. Tools and equipment required

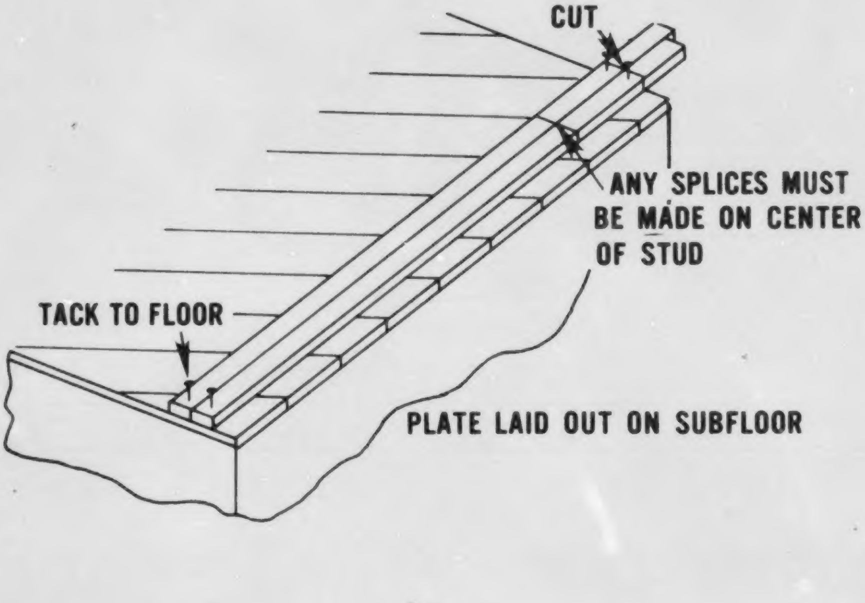
- A. Framing square
- B. Steel tape
- C. Pencil
- D. Plans or blueprint
- E. Handsaw

II. Procedure

- A. Select 2" x 4" lumber for plates

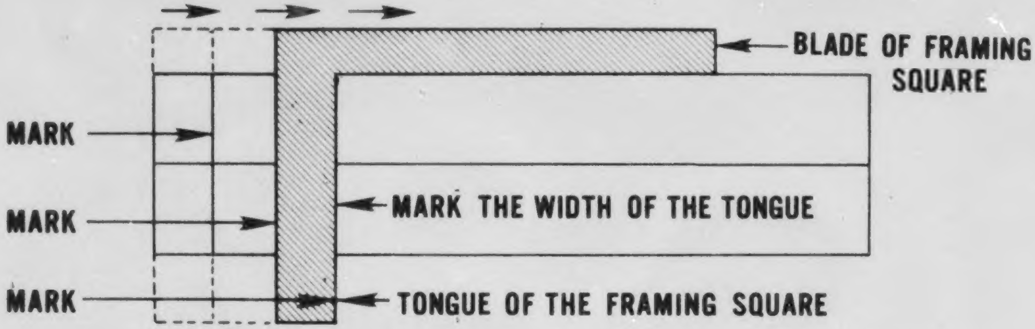
  (NOTE: Use straight 2" x 4" lumber for the top plate.)

- B. Place both top and sole plates together for layout


CUT
ANY SPLICES MUST BE MADE ON CENTER OF STUD
TACK TO FLOOR
PLATE LAID OUT ON SUBFLOOR

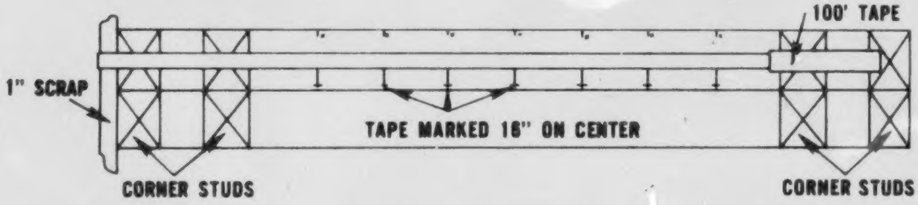
C. Mark the plates for the corner studs

(NOTE: Use the framing square to mark studs width.)


BLADE OF FRAMING SQUARE
MARK
MARK
MARK
MARK THE WIDTH OF THE TONGUE
TONGUE OF THE FRAMING SQUARE

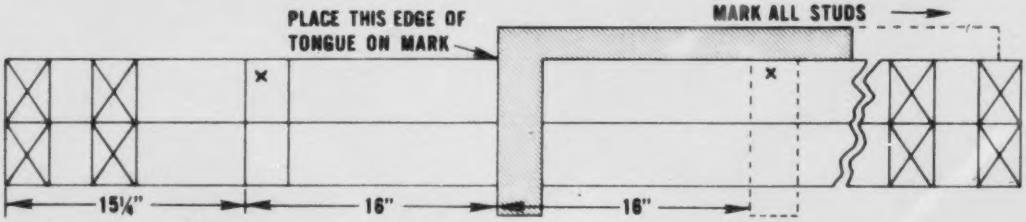
D. Mark off stud locations on both plates at the same time

(NOTE: The first stud should be on 15 1/4" center, not 16".)


100' TAPE
1" SCRAP
TAPE MARKED 16" ON CENTER
CORNER STUDS
CORNER STUDS

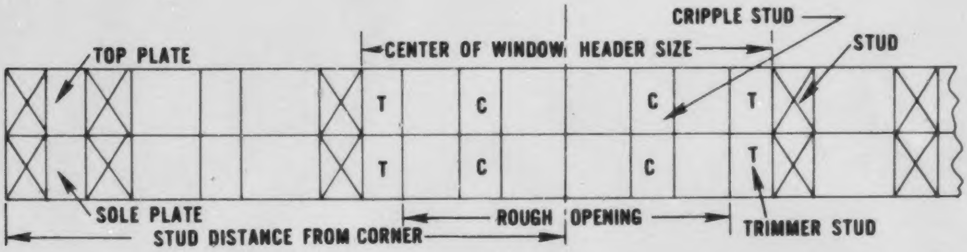
E. Use the framing square to draw lines indicating stud location

(NOTE: Mark an "X" to the right of each line to show stud location.)


PLACE THIS EDGE OF TONGUE ON MARK
MARK ALL STUDS
×
×
15¼"
16"
16"

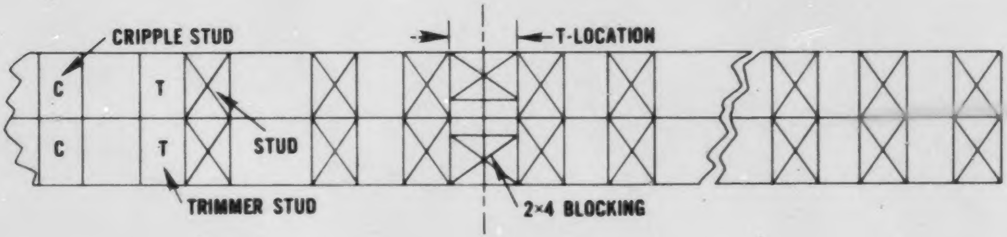
F. Mark rough opening locations

(NOTE: Check actual sizes of windows and doors.)


TOP PLATE
CENTER OF WINDOW
HEADER SIZE
CRIPPLE STUD
STUD
T
C
C
T
T
C
C
T
SOLE PLATE
STUD DISTANCE FROM CORNER
ROUGH OPENING
TRIMMER STUD

G. Mark locations for any "T"s included in the blueprint

H. Clean up work area and turn in tools


CRIPPLE STUD
T-LOCATION
C
T
C
T
STUD
TRIMMER STUD
2×4 BLOCKING

UNIT III

WALL LAYOUT

UNIT TEST--SECTION I

1. Match the terms associated with wall layout to the correct definition. Place the number of each term in the correct blank.

_____ a. Three studs and three blocks constructed to form two walls joining at a 90° angle providing five nailing surfaces

_____ b. Three studs and three blocks constructed to form two walls joining at a 90° angle providing nailing surfaces on all sides

_____ c. A piece of dimension lumber used to form the upright members of wall framing

_____ d. The framing member in a wall over a door or window

_____ e. The framing member on either side of a door or window opening on which the headers sit

_____ f. Dimension lumber used above and below the rough window openings to add strength to the wall and provide nailing surfaces

_____ g. The bottom portion of a wall, running horizontally, onto which studs are nailed and then secured to the floor

_____ h. The top piece of a wall to which the studs are nailed

_____ i. A piece of lumber placed on the top of the top plate to add strength and keep the wall straight

1. "T"
2. Top plate
3. Stud
4. Cripple
5. Corner
6. Double plate
7. Header
8. Bottom plate
9. Trimmer

UNIT III

WALL LAYOUT

UNIT TEST--SECTION 2

2. Identify each of the parts of a wall from the drawing below. Write the letter of each part shown in the picture below in the blank next to its correct name.

Studs _____

Corner _____

"T" _____

Trimmer _____

Cripple _____

Header _____

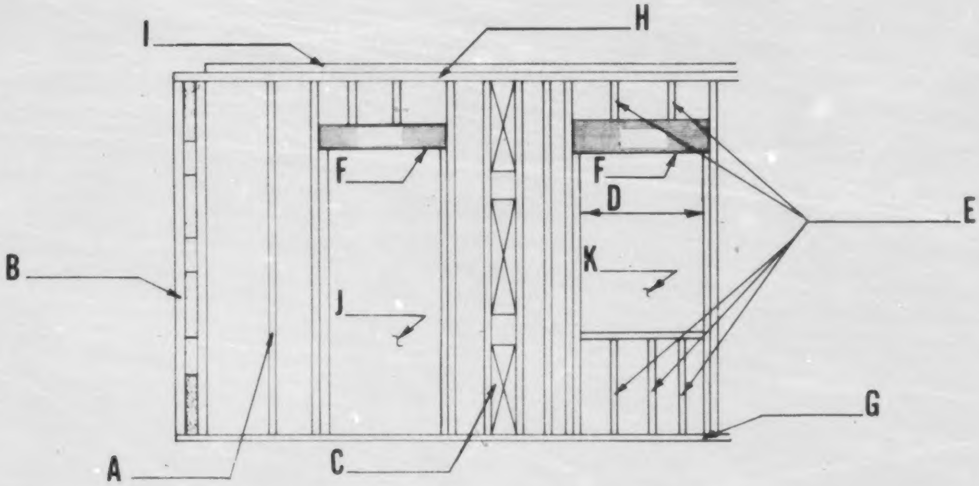
Bottom plate _____

Top plate _____

Double plate _____

Door _____

Window _____



3. Point out the correct rules to follow when laying out walls by answering true or false to each of the following statements.

_____ a. Layout the top and bottom plates separately

_____ b. Run your hands along the edges of the plates when marking stud locations

_____ c. The location of the first stud does not matter

_____ d. Mark the location for each stud as you install one

_____ e. Mark the location for doors and windows after the wall is set up

_____ f. Mark the location for "T"s and corners after the wall is put together

4. Name the two types of rough openings in a wall

   a.

   b.

5. Demonstrate the ability to lay out a wall

   (NOTE: If this activity has not been accomplished prior to the test, ask your instructor when you may complete it.)

UNIT III

WALL LAYOUT

ANSWERS TO UNIT TEST

SECTION 1

1. a. 1
   b. 5
   c. 3
   d. 7
   e. 9
   f. 4
   g. 8
   h. 2
   i. 6

SECTION 2

2. a. Studs
   b. Corner
   c. "T"
   d. Trimmer
   e. Cripple
   f. Header
   g. Bottom Plate
   h. Top Plate
   i. Double Plate
   j. Door
   k. Window

3. a. False

  b. False

  c. False

  d. False

  e. False

4. a. Doors

  b. Windows

5. Evaluated to the satisfaction of the instructor.

UNIT IV

FRAMING WOOD JOINTS

UNIT OBJECTIVE

After completion of this unit, the student will be able to select and properly construct wood joints used in framing. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Identify the ten common wood joints and point out the use of each.
2. Demonstrate the ability to:
   a. Construct a butt joint
   b. Construct wood joints for building

UNIT IV

FRAMING WOOD JOINTS

SUGGESTED ACTIVITIES

I. Instructor:

   A. Discuss unit objective
   B. Provide students with information and job sheets
   C. Prepare transparency and lesson plan
   D. Discuss information and job sheets
   E. Demonstrate the procedures outlined in the job sheets
   F. Have students perform the procedures outlined on the job sheets
   G. Plan and make a field trip to a job site to show students how joints are used during construction
   H. Give test
   I. Review problem areas identified by the unit test

II. Student:

   A. Discuss any questions of unit objective
   B. Read and discuss information and job sheets
   C. Complete job sheets
   D. Observe different uses of wood joints on construction sites
   E. Take test
   F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objectives
   B. Information Sheet

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- C. Transparency master
    - 1. TM-1--Wood Joints
- D. Job sheets
    - 1. Job Sheet #1--Construct a Butt Joint
    - 2. Job Sheet #2--Construct Wood Joints for Building
- E. Test
- F. Answers to test

II. References

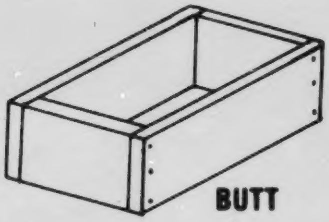
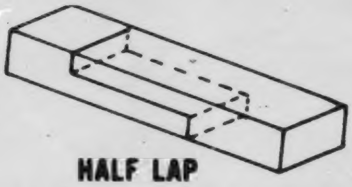
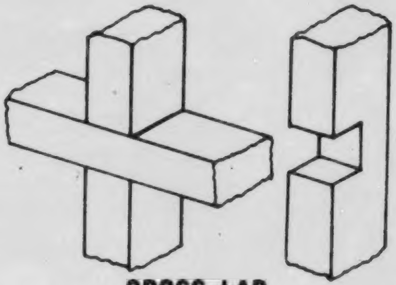
A. Tool Guide. The Stanley Works. New Britain, Connecticut: 600 Myrtle Street.

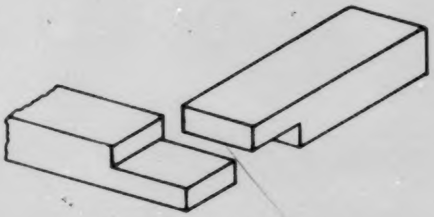
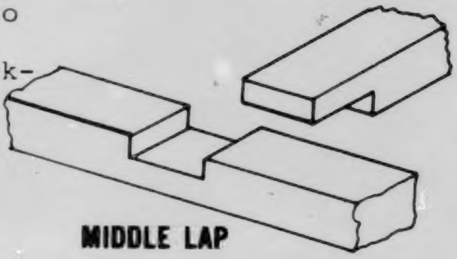
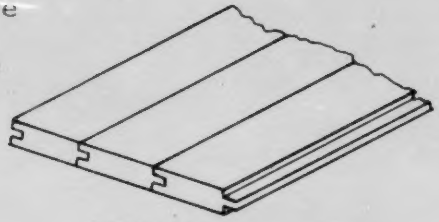
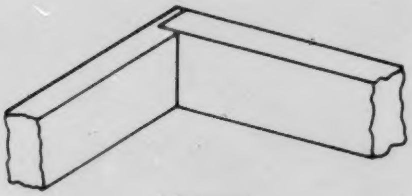
B. Wagner, Willis H. Modern Woodworking. South Holland, Illinois: The Goodheart-Wilcox Co., 1976.

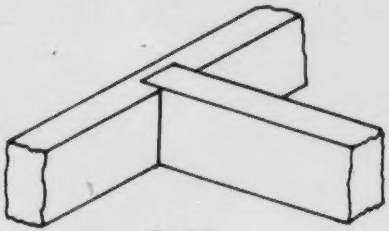
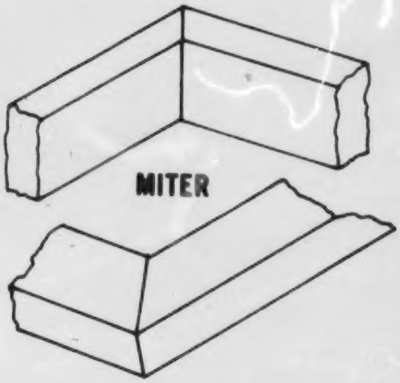
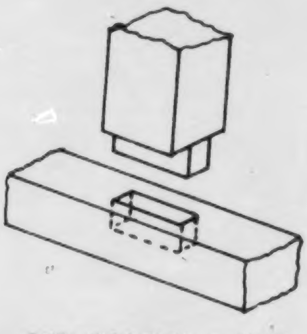
UNIT IV

FRAMING WOOD JOINTS

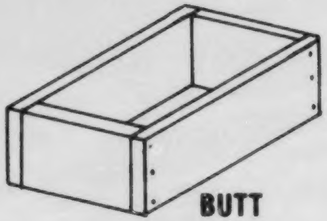
INFORMATION SHEET

Joint	Description	Illustration
Butt	Made by placing the end of one board against another. Most commonly used joint but not as strong as most.	 BUTT
Half-lap	Used to splice two similar pieces together. The length of the splice should be twice the width of the materials being used.	 HALF LAP
Cross-lap	Used where boards or braces cross. Depth of notch should be half the thickness of the materials being used.	 CROSS LAP

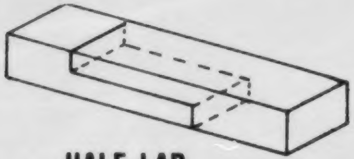
Joint	Description	Illustration
End-lap	Used as a corner joint in simple wall framing. Depth should be half the thickness of the materials being used.	 **END LAP**
Middle-lap	Used for joining braces to crossrails or legs to a workbench. Depth should be half the thickness of the material being used.	 **MIDDLE LAP**
Tongue and groove	Each board has a groove on one edge and a matching tongue on the other edge. Used in flooring and siding.	 **TONGUE AND GROOVE**
Rabbet	Used for corners in drawers, cabinets, and boxes. Made by cutting recesses in pieces to be joined.	 **RABBET**

Joint	Description	Illustration
Dado	A rectangular recess cut in the wood. Used in cabinet making and shelving.	 DADO
Mitre or miter	A joint made by cutting both pieces to be joined at the same angle. Used for trim work.	 MITER
Sub-mortise tenon	One of the strongest joints used in making tables, chairs, and decorative panel doors.	 SUB MORTISE TENON

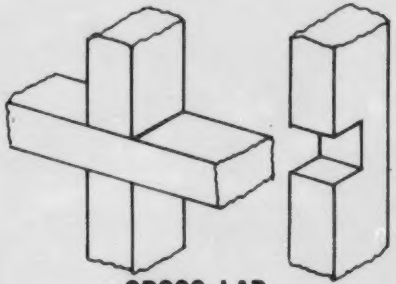
WOOD JOINTS



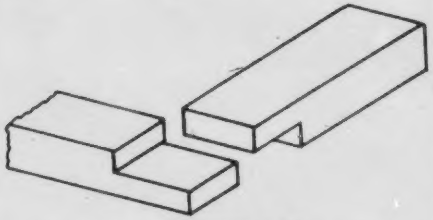
BUTT



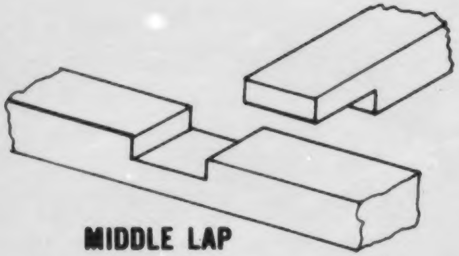
HALF LAP



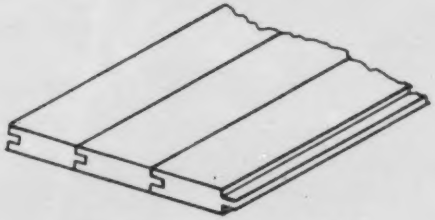
CROSS LAP



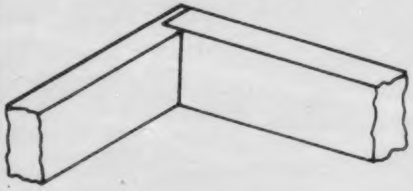
END LAP



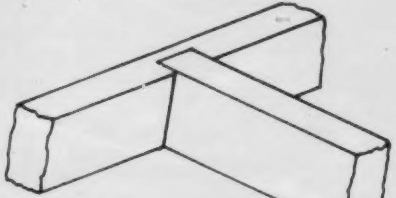
MIDDLE LAP



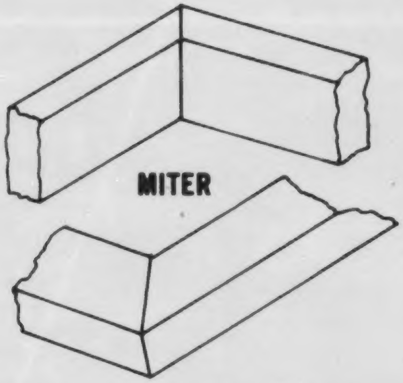
TONGUE AND GROOVE



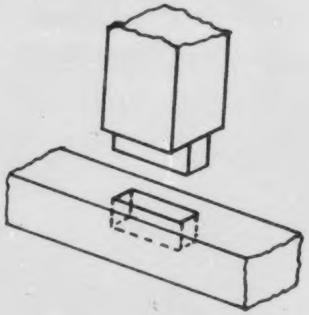
RABBET



DADO



MITER



SUB MORTISE TENON

UNIT IV

FRAMING WOOD JOINTS

JOB SHEET #1--CONSTRUCT A BUTT JOINT

I. Tools, equipment, and materials required:

  A. Pencil

  B. Combination square

  C. Steel tape or wooden folding rule

  D. Hand saw

  E. 16 oz. hammer

  F. 16d box nails

  G. Two minus 2" x 4" x 12" boards

II. Procedure:

  A. Cut one 2" x 4" to 9" long.

  (Caution: Keep fingers clear of handsaw while cutting.)

  B. Cut one 2" x 4" to 8" long.

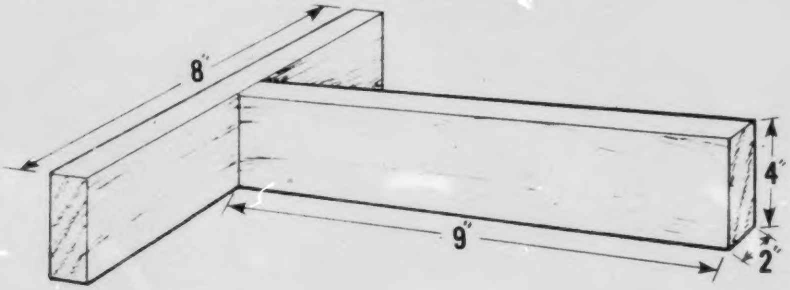
  (Note: Check cuts for squareness.)

  C. Using the steel tape mark the center point of the 8" board.

  D. Center the 9" - 2" x 4" on the center point of the 8" board.

  E. Nail the boards together.

  F. Clean up work area and turn in tools.



UNIT IV

FRAMING WOOD JOINTS

JOB SHEET #2--CONSTRUCT WOOD JOINTS FOR BUILDING

I. Tools, equipment, and materials required:

   A. Pencil

   B. Combination square

   C. Steel tape or wood folding rule

   D. 13 oz. hammer

   E. 6d finish nails

   F. Table saw

   G. Dado blade

   H. Miter box

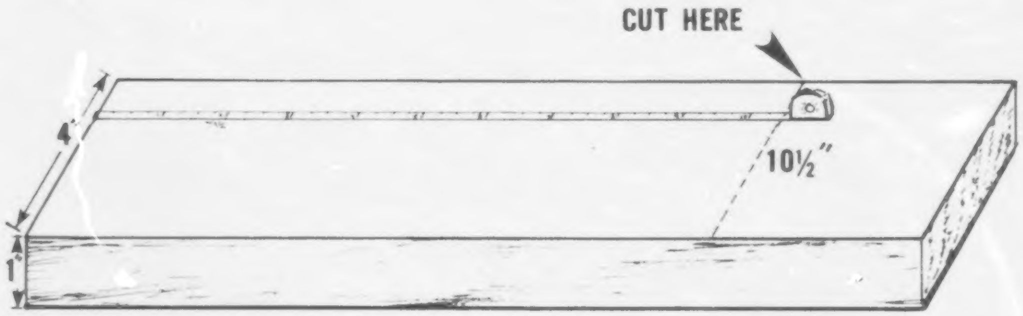
   I. 1" x 4" x 6' boards

II. Procedure:

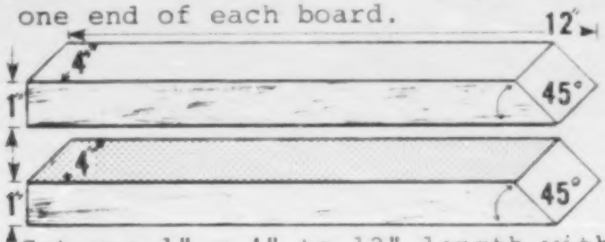
   A. Cut one 1" x 4" to 10½" long with a square cut on each end

   (Caution: Keep hands clear of blades at all times and never make adjustments with the table saw plugged in.)

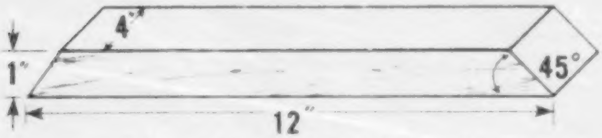
   (Note: Double check each measurement before making the cut.)



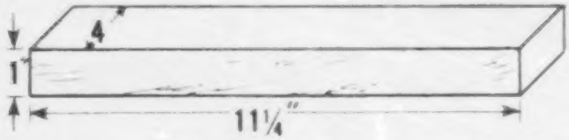
B. Cut two 1" x 4" to 12" length with a 45° miter on one end of each board.



C. Cut one 1" x 4" to 12" length with a 45° miter on both ends.



D. Cut one 1" x 4" to 11 1/4" length with a square out on each end.



E. Set the dado blade to 3/4" width and install it on the table saw.

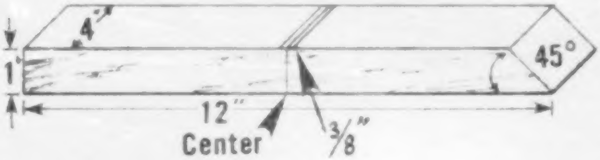
(Caution: Make sure saw is unplugged.)

F. Set the dado blade to 3/8" depth.

G. Mark the center of each of the two 12" boards cut in step B.

H. Mark 3/8" from each side of the center mark.

I. Draw lines across the board using the square.

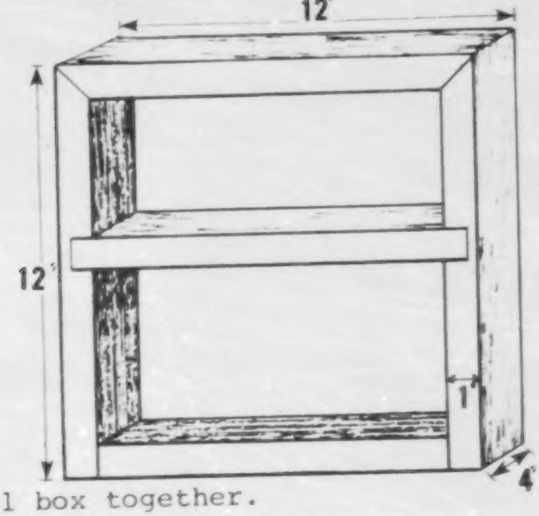


J. Cut the dado along the lines on each board.

(Caution: Keep the proper margin of safety.)

K. Check all pieces for squareness and proper angles.

L. Put box together and check for fit.



M. Nail box together.

N. Clean up work area and turn in tools.

UNIT IV

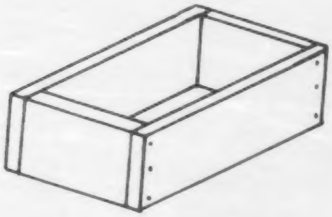
FRAMING WOOD JOINTS

UNIT TEST

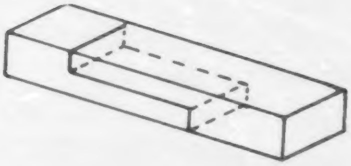
1. Identify the ten common wood joints and point out the use of each. Write the correct type of joint in each of the blanks.

Half-lap
Cross-lap
End-lap
Sub-mortise tenon
Middle-lap
Miter
Dado
Rabbet
Butt
Tongue and groove

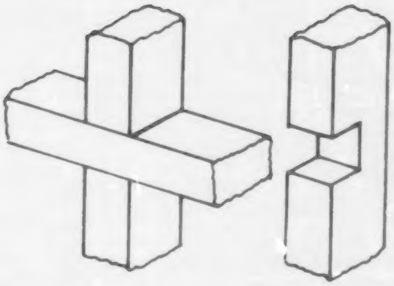
a. ____________________



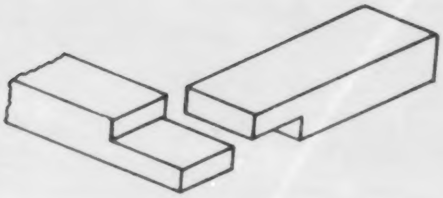
b. ____________________



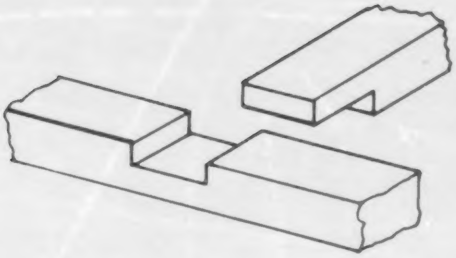
c. ____________________



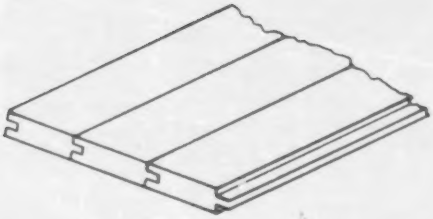
d. ____________________



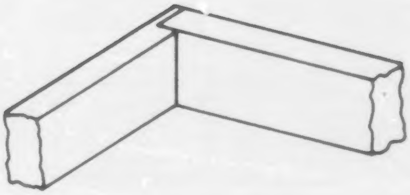
e. ____________________



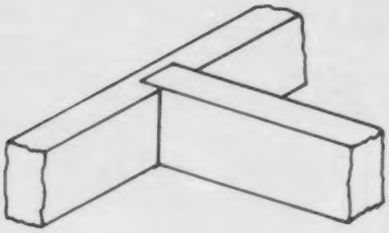
f. ____________________



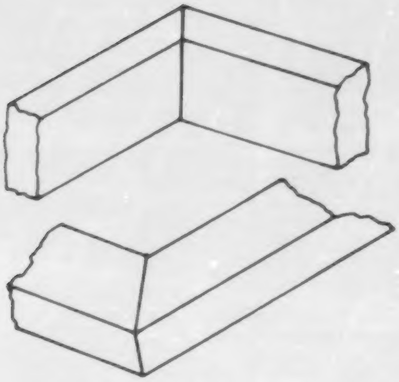
g. ____________________



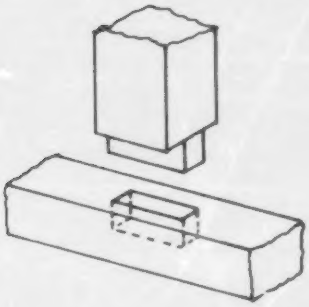
h. ________________



i. ________________



j. ________________



k. A ________________ joint is used where crossrails or braces cross.

l. A ________________ joint is used when joining braces to crossrails.

m. A ________________ joint is made by placing one edge or end of one piece against another.

n. A ________________ joint is often used on flooring and siding.

o. A ________________ joint is used in making tables, chairs, and decorative panel doors.

p. A ______________joint is used when splicing two pieces together.

q. A ______________joint is where both pieces to be joined are cut at a 45° angle.

r. A ______________joint is used when making corners for drawers, cabinets, and boxes.

s. A ______________joint is used as a corner joint for simple framing.

t. A ______________joint has a rectangular recess cut into the wood.

2. Demonstrate the ability to:

a. Construct a butt joint.

b. Construct wood joints for building.

(Note: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT IV

FRAMING WOOD JOINTS

ANSWERS TO UNIT TEST

1. a. Butt
   b. Half-lap
   c. Cross-lap
   d. End-lap
   e. Middle-lap
   f. Tongue and groove
   g. Rabbet
   h. Dado
   i. Miter
   j. Sub-mortise and tenon
   k. Cross-lap
   l. Middle-lap
   m. Butt
   n. Tongue and groove
   o. Sub-mortise tenon
   p. Half-lap
   q. Miter
   r. Rabbet
   s. End-lap
   t. Dado

2. Evaluated to the satisfaction of the instructor.

UNIT V

FRAMING

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify the terms used in framing and the different framing members used on various types of construction. The student will also be able to frame a building using the correct type of construction. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with framing to the correct definitions
2. Identify each of the parts of house framing
3. Identify each of the parts of a simple truss
4. Point out the different types of roofs
5. Point out the parts of a roof
6. Identify the types of trusses used in building construction
7. Point out the types of rafters used in roof construction
8. Demonstrate the ability to:
    - a. Frame a floor
    - b. Lay subflooring
    - c. Frame a wall
    - d. Frame a ceiling
    - e. Frame a roof
    - f. Lay roof sub-covering

UNIT V

FRAMING

SUGGESTED ACTIVITIES

I. Instructor:

- A. Discuss unit objective
- B. Provide students with information and job sheets
- C. Prepare transparencies and lesson plan
- D. Discuss information and job sheets
- E. Demonstrate the procedures outlined in the job sheets
- F. Have students perform the procedures outlined on the job sheets
- G. Plan a field trip to a job site to show students how a house is framed
- H. Give test
- I. Review problem areas pointed out by the test

II. Student:

- A. Discuss any questions of unit objective
- B. Read and discuss information and job sheets
- C. Complete job sheets
- D. Observe the different types of framing at construction sites
- E. Take test
- F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objectives
- B. Information sheet

C. Transparency masters

1. TM-1--Parts of House Framing
2. TM-2--Parts of a Simple Truss
3. TM-3--Types of Roofs
4. TM-4--Parts of a Roof
5. TM-5--Types of Trusses
6. TM-6--Kinds of Rafters

D. Job sheets

1. Job Sheet #1--Frame a Floor
2. Job Sheet #2--Lay Subflooring
3. Job Sheet #3--Frame a Wall
4. Job Sheet #4--Frame a Ceiling
5. Job Sheet #5--Frame a Roof
6. Job Sheet #6--Lay Roof Sub-covering

E. Test

F. Answers to test

II. References

A. Landers, Jack M. Construction. South Holland, Illinois: The Goodheart-Wilcox Co., Inc., 1976.

B. Carlson, G. E. and R. E. Putnam. Architectural and Building Trades Dictionary. Chicago, Illinois: American Technical Society, Third edition.

C. Durbahn, Walter E. Fundamentals of Carpentry. Chicago, Illinois: American Technical Society. Fourth edition, Volume 1.

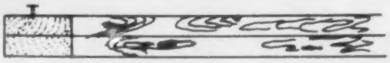
UNIT V

FRAMING

INFORMATION SHEET

I. Terms and definitions

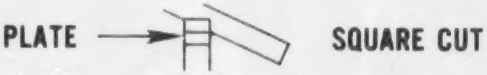
A. Tack--Used with temporary bracing where the nails are not driven completely into the wood



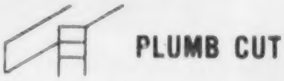
B. Crown--Refers to the top side of a bend in material

C. Tail off--Used to describe rafter tails when cutting to length

D. Square cut--Where rafter tails are cut off squarely



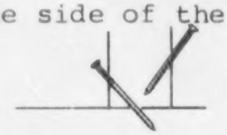
E. Plumb cut--Where rafter tails are cut off where the ends are plumb



F. Plumb--A true vertical line

G. Prefabricate--To build at a factory or shop for use on the job site

H. Toenail--Nail a board to an adjoining board by nailing from the side of the board



II. Parts of house framing

A. Floor joists--Main supporting members of floor.

B. Joist header--The framing member on each side of a building to which the floor joists are nailed

C. Bridging--Diagonal or solid blocking used to stiffen the floor joists so they will not move from side to side

D. Sub-flooring--Plywood or solid wood used to add strength and to provide a working surface or base for the finish floor

E. Rough sill--The horizontal member below a rough window opening

F. Girder--Runs along the center of the building to add strength to the floor joist

G. Diagonal or wind brace--Usually a 1" x 4" or 1" x 6" used to give wind resistance to a wall

(Note: Plates and studs are notched so the brace will fit flush with the studs.)

H. Stiffback--Used to insure proper alignment of the ceiling joist

I. Barge rafter--The rafter which extends beyond the wall of a building, forming the overhang

J. Ceiling joist--The framing member which extends across a room or building and is nailed to the double plate

(Note: The ceiling materials are nailed to this joist.)

K. Ridge--The center member of the roof to which the rafters are nailed

L. Rafter--The framing member that forms the roof of a building

M. Truss--A prefabricated roof unit consisting of the ceiling joist, rafters, and braces

III. Parts of simple prefabricated truss

A. Top cord--The member of the truss which serves as a rafter

B. Bottom cord--The member of the truss that serves as the ceiling joist

C. Gusset--Piece of wood or metal used to fasten the members of a truss together

D. Tension webb--The brace which connects the ridge of the truss to the joist

E. Compression web--The brace which gives added support to the middle of the rafter

IV. Types of roofs

A. Shed or lean-to

B. Gable

C. Hip

D. Gable and valley

E. Hip and valley

V. Parts of a roof

A. Run--Distance from the outside of the top plate to the center of the roof

B. Span--Distance from outside of one top plate to the outside of the opposite top plate

C. Plate--The part of the wall to which the roof is fastened

D. Length of rafter--Distance from the outside of the top plate to the ridge

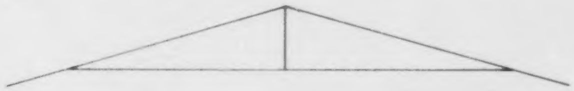
E. Center line or ridge--The middle line of the roof or ridge board

F. Rise--The distance from the plate vertically to the center of the ridge

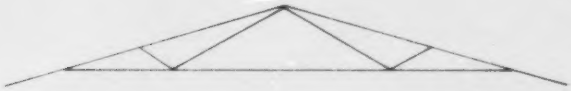
G. Tail--The portion of the rafter from the wall to the end of the rafter which forms the overhang

VI. Types of trusses

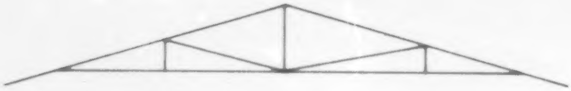
A. Kingpost



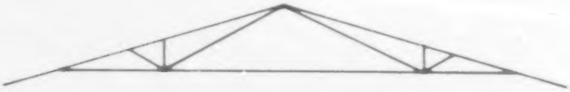
B. Fink



C. Howe



D. Fan



VII. Kinds of rafters

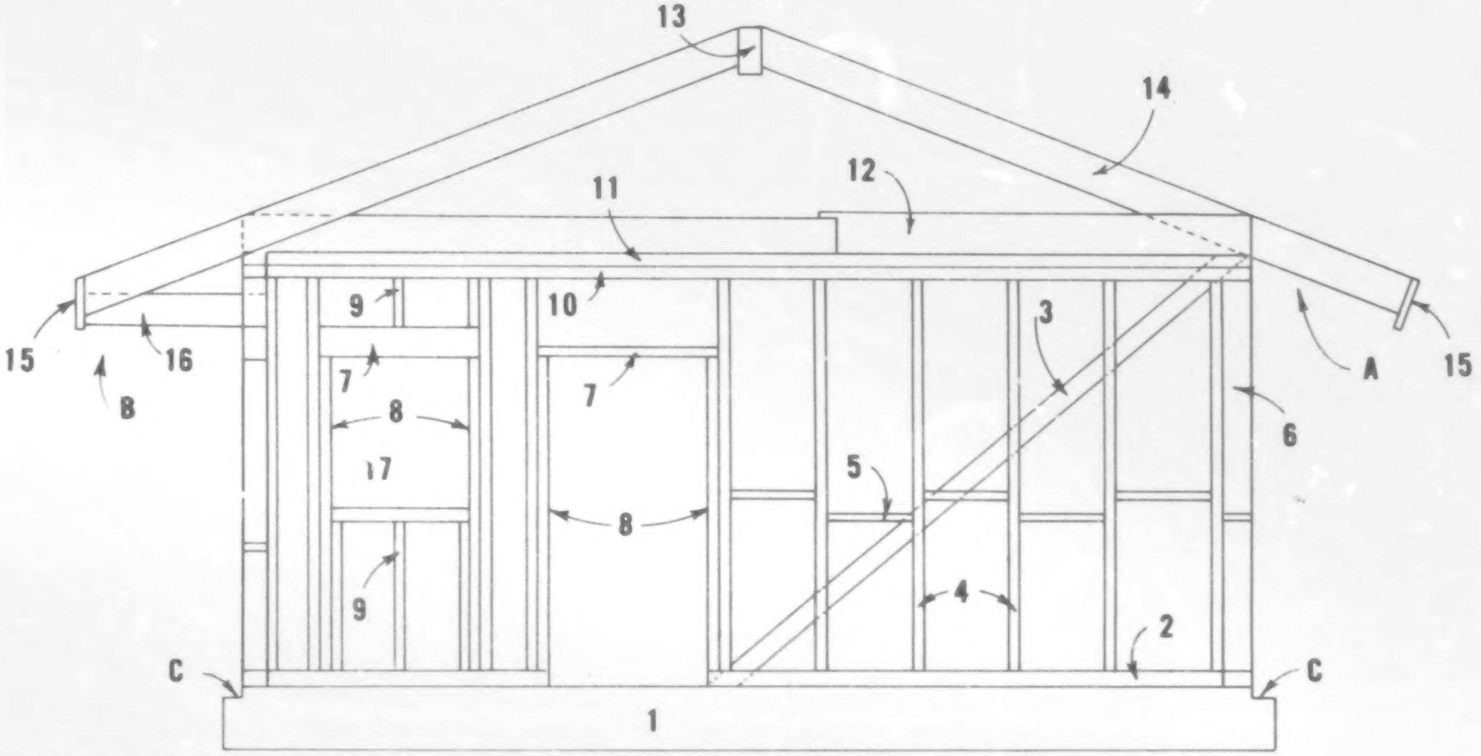
A. Common

B. Hip

C. Jack

D. Valley

PARTS OF HOUSE FRAMING


13
14
12
11
10
9
3
15
16
7
A
15
B
7
6
8
17
5
8
9
4
2
C
C
1

1. SLAB OR FOUNDATION
2. SOLE OR BOTTOM PLATE
3. DIAGONAL OR WIND BRACE
4. STUD
5. FIRE BLOCKING
6. CORNER
7. HEADER
8. TRIMMER

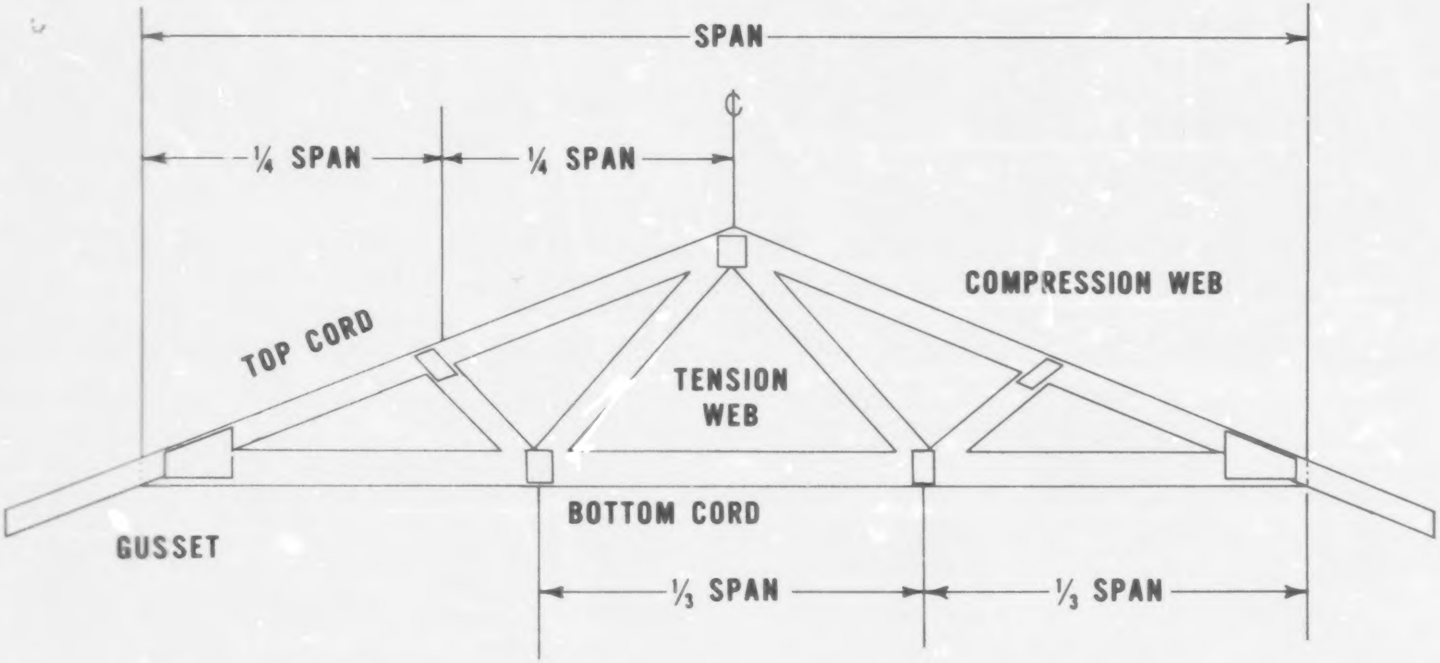
A. OPEN CORNICE, SQUARE CUT

B. CLOSED CORNICE, PLUMB CUT

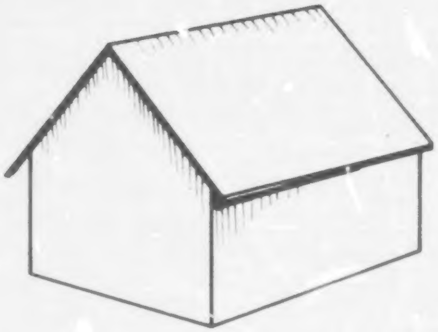
C. BRICK LEDGE

9. CRIPPLE
10. TOP PLATE
11. DOUBLE PLATE
12. CEILING JOIST
13. RIDGE
14. RAFTER
15. FASCIA
16. LOOKOUT
17. BOTTOM HEAD

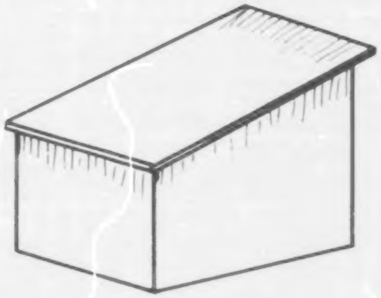
PARTS OF A SIMPLE TRUSS


SPAN
℄
¼ SPAN
¼ SPAN
COMPRESSION WEB
TOP CORD
TENSION WEB
BOTTOM CORD
GUSSET
⅓ SPAN
⅓ SPAN

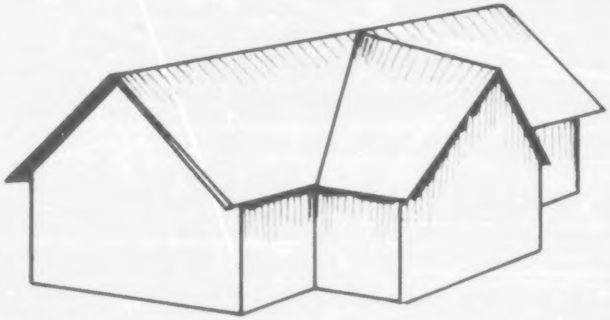
TYPES OF ROOFS



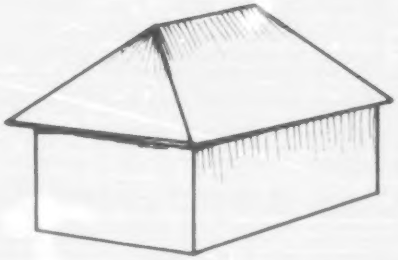
Shed



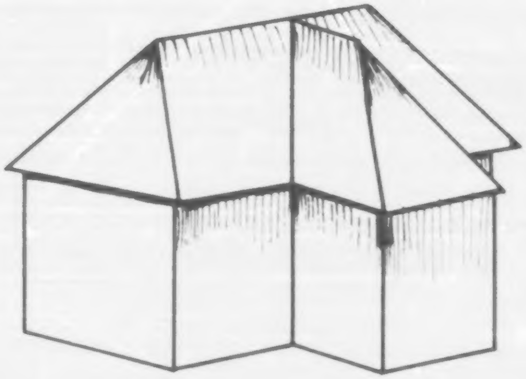
Gable



Gable and Valley



Hip

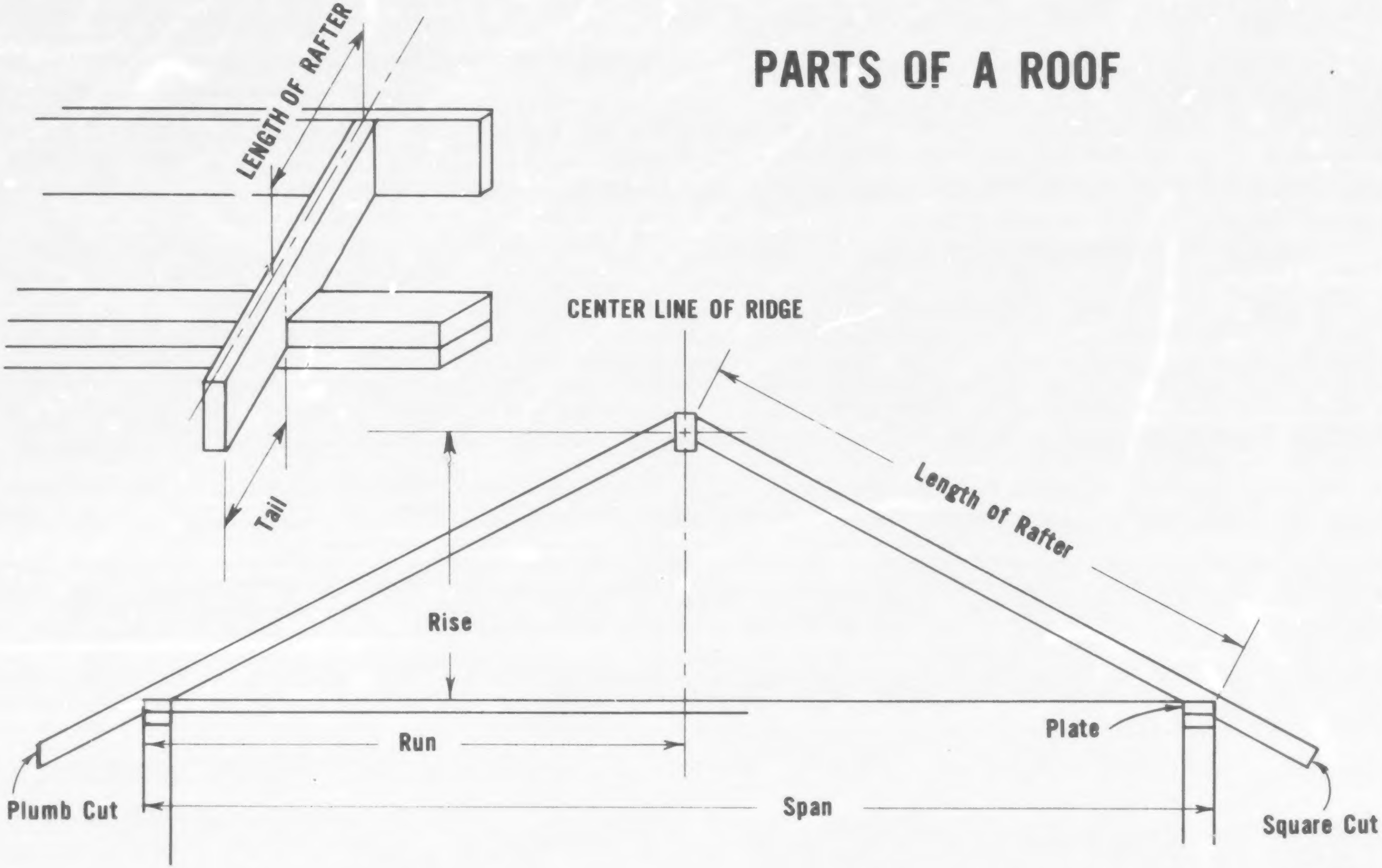


Hip and Valley

TM-3

V-13

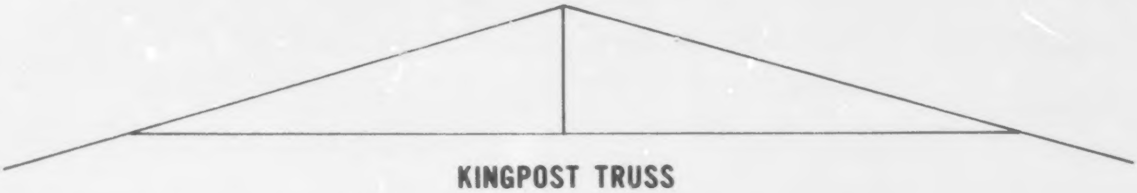
PARTS OF A ROOF


LENGTH OF RAFTER
Tail
CENTER LINE OF RIDGE
Length of Rafter
Rise
Run
Plate
Plumb Cut
Span
Square Cut

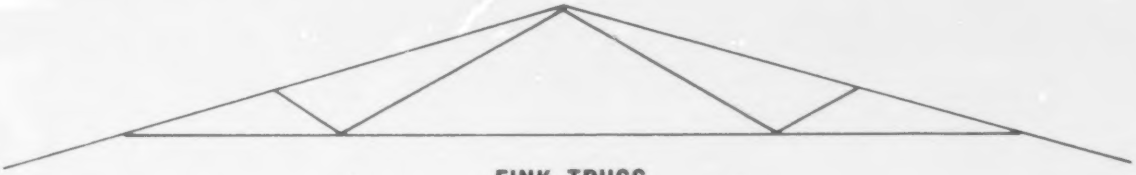
TM-4

V-15

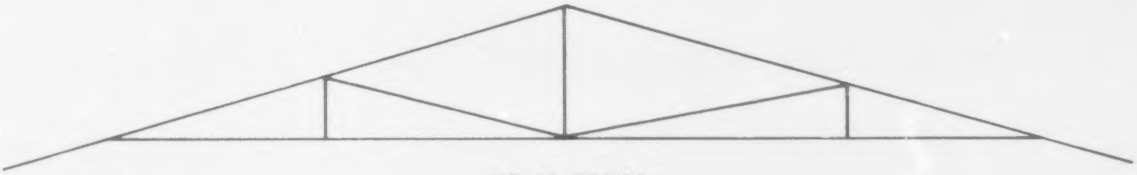
TYPES OF TRUSSES



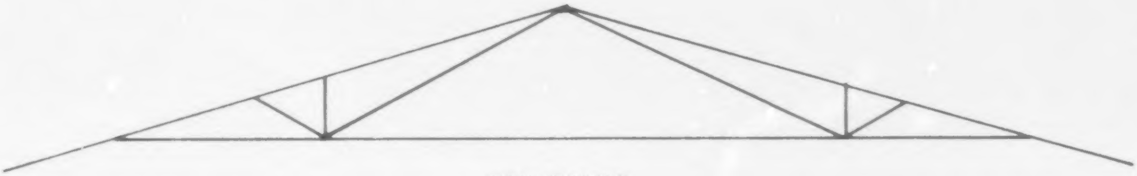
KINGPOST TRUSS



FINK TRUSS

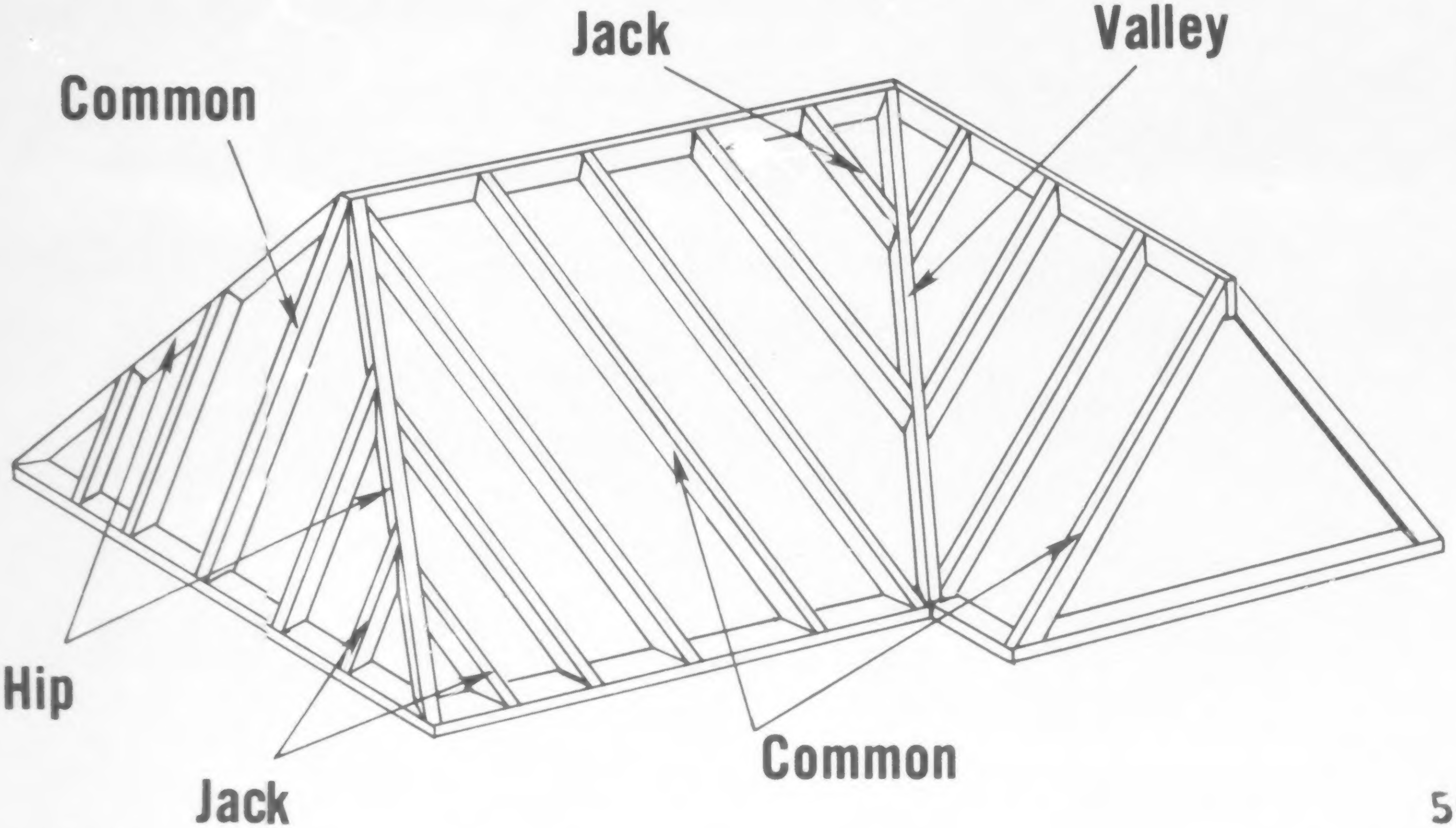


HOWE TRUSS



FAN TRUSS

KINDS OF RAFTERS


Jack
Valley
Common
Hip
Jack
Common

TM-6

V-19

UNIT V

FRAMING

JOB SHEET #1--FRAME A FLOOR

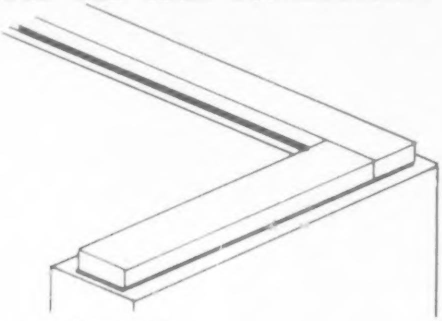
I. Tools and equipment required:

- A. Table or radial arm saw
- B. 13 oz. hammer
- C. 16d box nails
- D. Framing square
- E. Pencil
- F. 50-foot tape measure
- G. Materials according to blueprint

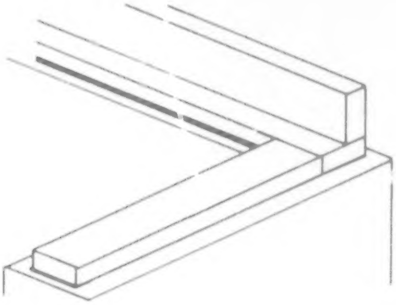
II. Procedure:

- A. Cut sill plates to length

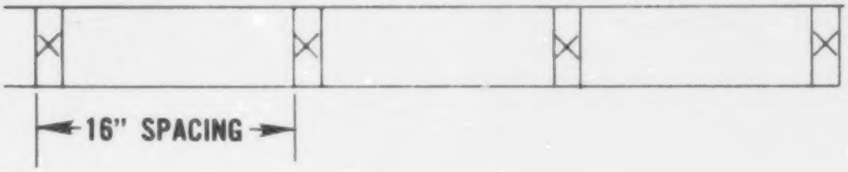
  (Note: Sill plates are only required for larger buildings when the building is to be built on blocks or pier and beam foundation.)



- B. Cut headers to length.



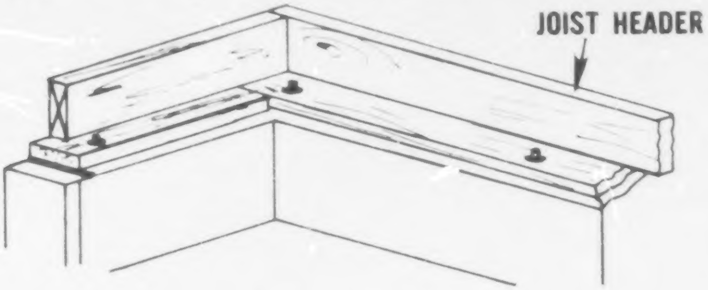
C. Layout headers for floor joist locations



D. Cut floor joist to desired length

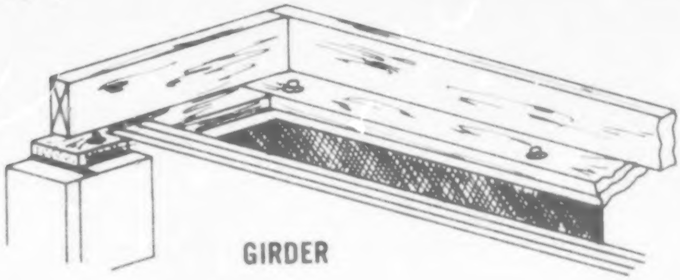
E. Build up a box sill

(NOTE: Check for squareness of the floor.)

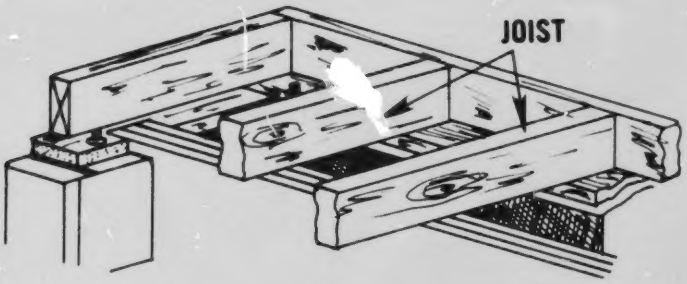

JOIST HEADER

F. Build up a girder and nail in place

(NOTE: Girders may be omitted on small building.)



G. Nail floor joist in place

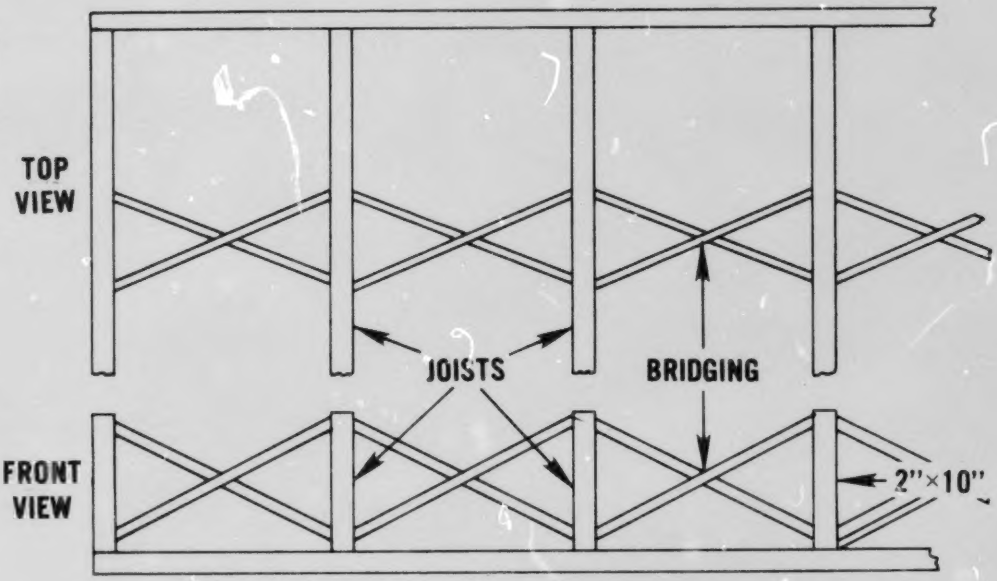


H. Figure number of pieces of bridging required

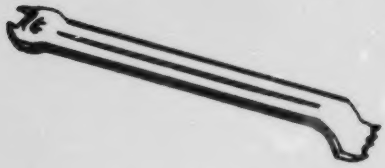
(Note: One row of bridging is required for buildings with spans between 8 to 16 feet on the floor joist and two rows for spans over 16 feet.)

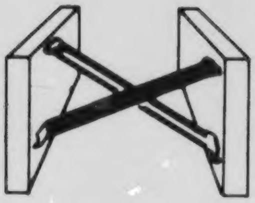
I. Lay out and cut bridging

(Note: Steel bridging may be used in place of wood.)


TOP VIEW
JOISTS
BRIDGING
FRONT VIEW
2"×10"

J. Nail bridging in place





K. Add any additional blocking necessary

(Note: Floor framing is complete and ready for subfloor.)

L. Clean work area and turn in tools

UNIT V

FRAMING

JOB SHEET #2--LAY SUBFLOORING

I. Tools and equipment required:

- A. Portable power saw
- B. 13 oz. hammer
- C. 8d box nails
- D. Chalk line
- E. Combination square
- F. Materials according to blueprint

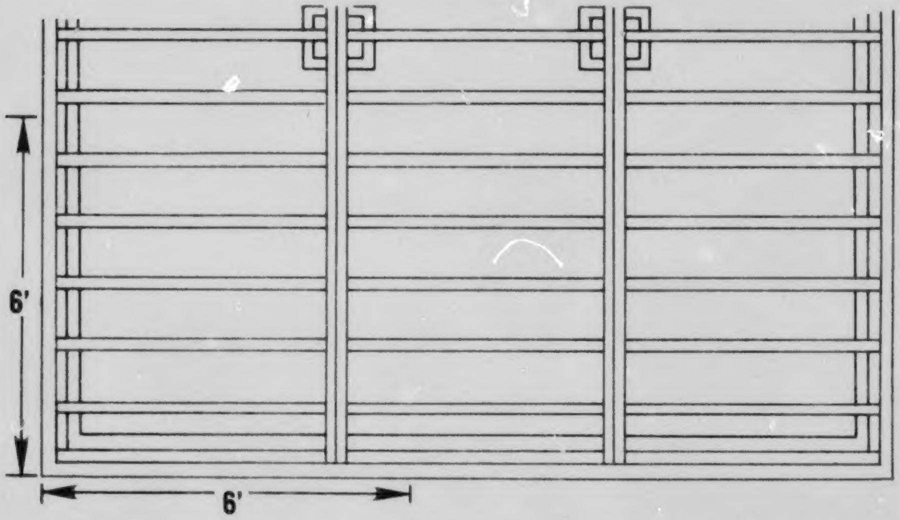
II. Procedure:

(Note: Determine what the subflooring material is from the blueprint and then select one of the methods below.)

A. Lumber flooring

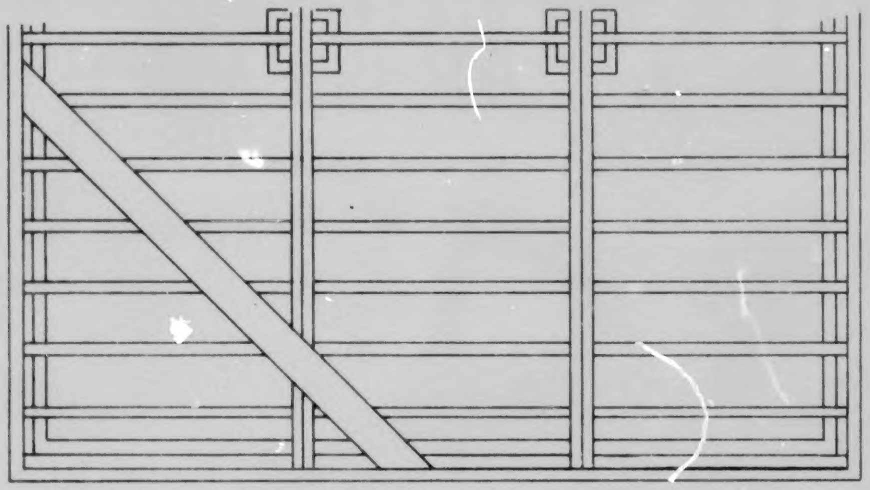
1. Measure the same distance in both directions from one corner

(Note: Measuring 6-foot distances will provide an accurate layout.)



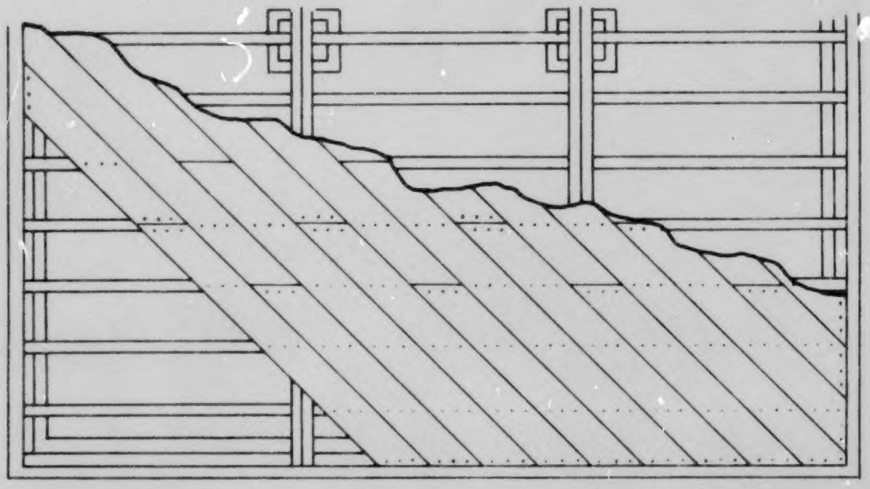
2. Lay the first board on these marks and nail in place

(Note: Use three nails per joist for flooring 6 inches or wider.)



3. Lay the remaining flooring with staggered joints and nail in place

(Note: The ends may be allowed to run over the ends of the headers but minimum overhang should be allowed.)



4. Strike a line along the outside of the header joist with the chalkline

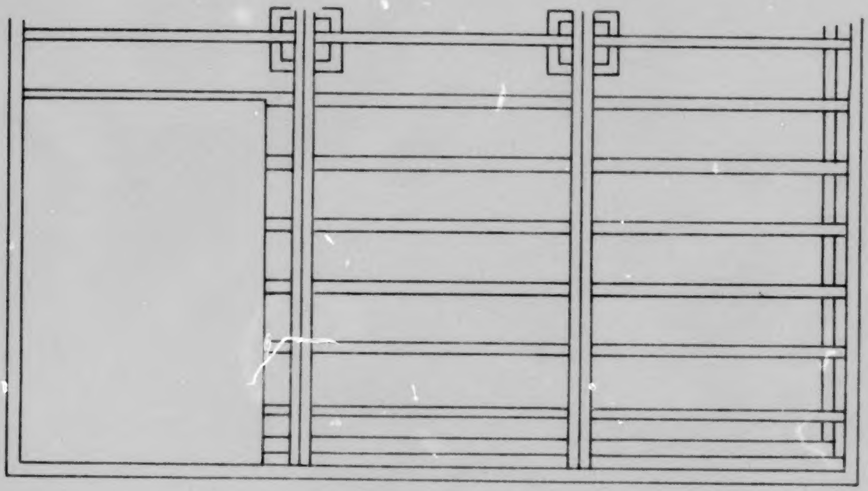
5. Cut the ends of the flooring from header joists

   (Caution: Be careful not to bind the saw.)

B. Plywood flooring

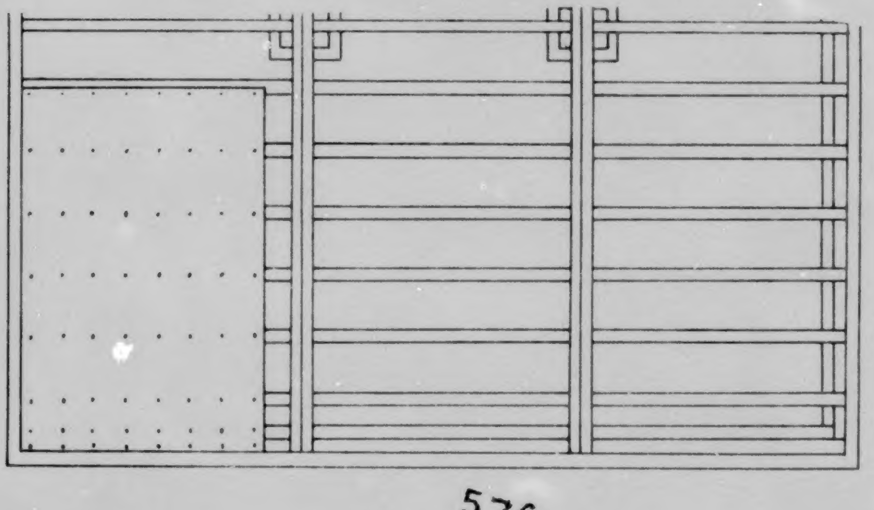
1. Lay a sheet of plywood on the corner of the floor where the joists were begun

   (Note: The plywood should be at a right angle to the floor joists.)



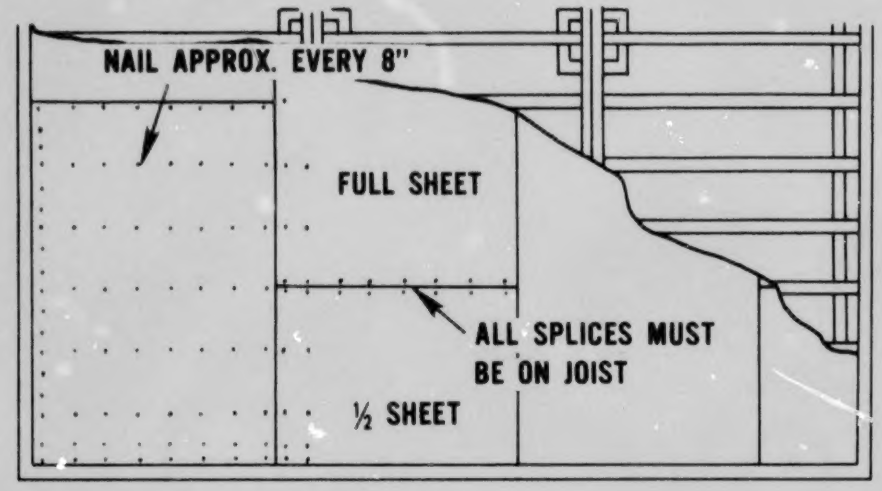
2. Nail the plywood in place

   (Note: Nail about every 8 inches.)



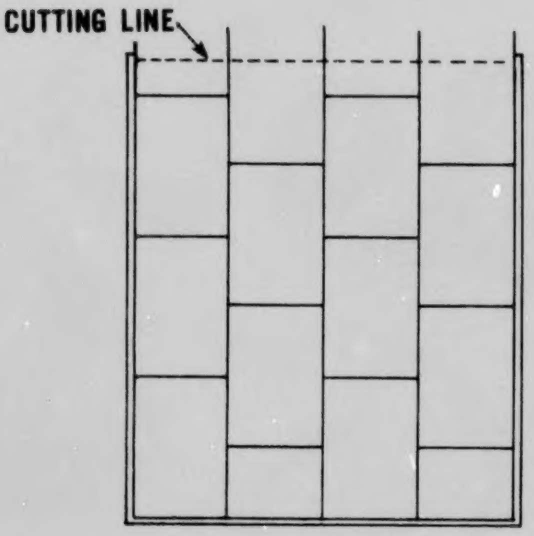
3. Nail sheets of plywood in place until floor is covered

   (Note: Alternate splice locations on the joists.)


NAIL APPROX. EVERY 8"
FULL SHEET
ALL SPLICES MUST BE ON JOIST
½ SHEET

4. Strike a line along the outside of the header joist with the chalkline

5. Cut along the chalkline mark to remove plywood hanging off the floor


CUTTING LINE

UNIT V

FRAMING

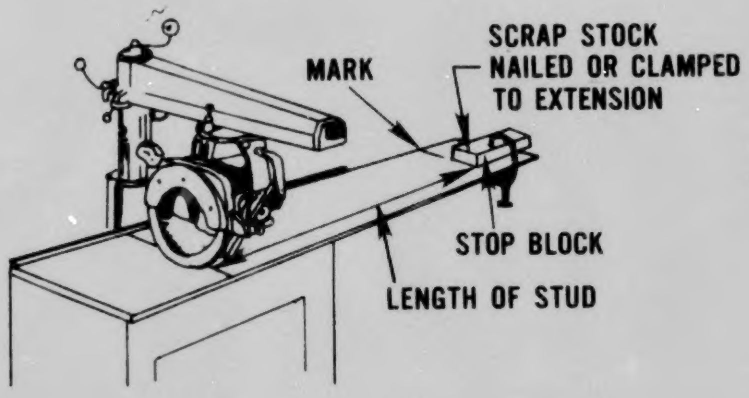
JOB SHEET #3--FRAME A WALL

I. Tools and equipment required:

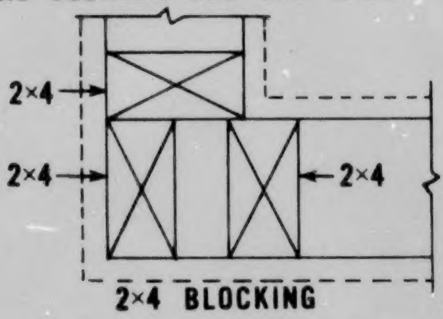
- A. Table or radial arm saw
- B. 13 oz. hammer
- C. Framing square
- D. 50-foot tape
- E. 16d nails
- F. Blueprint
- G. Materials according to the blueprint
- H. Pencil

II. Procedure

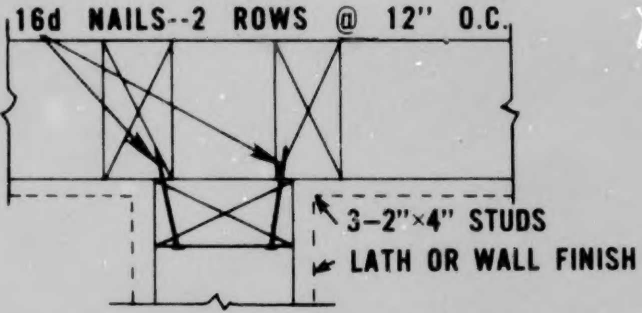
- A. Follow the steps outlined in Job Sheet #1, Unit III for wall layout
- B. Determine the number of studs needed from the sill plate
- C. Determine the length of the studs from the blueprint
- D. Set up the saw and cut studs to length


MARK
SCRAP STOCK NAILED OR CLAMPED TO EXTENSION
STOP BLOCK
LENGTH OF STUD

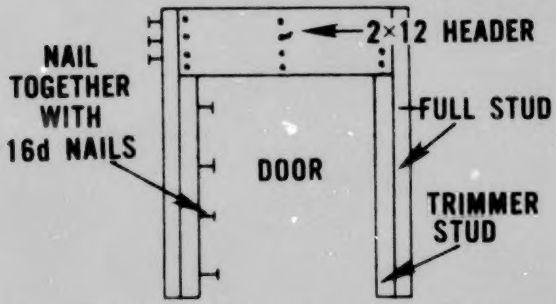
E. Build the corners for the wall

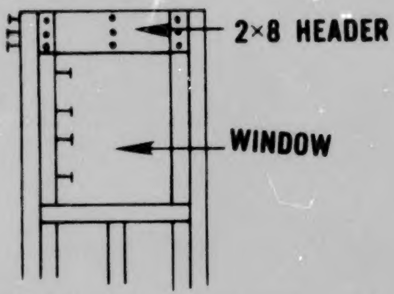

2×4
2×4
2×4
2×4 BLOCKING

F. Build any "T"s for the wall

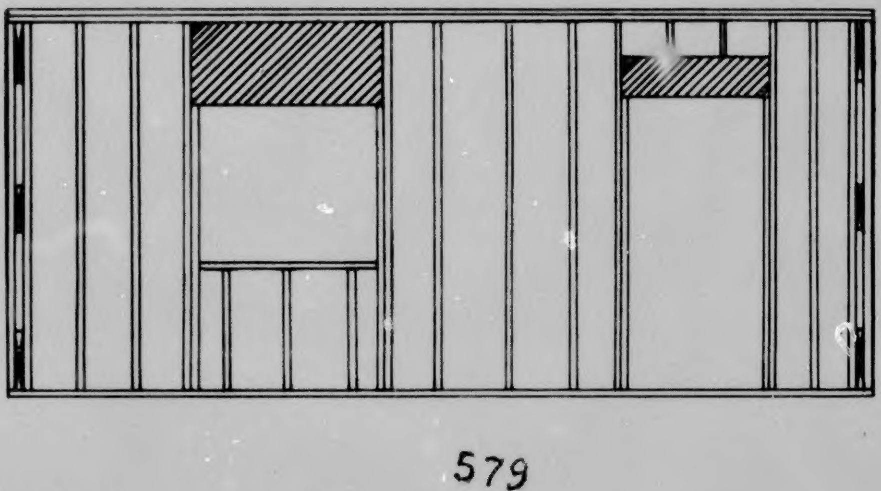

16d NAILS--2 ROWS @ 12" O.C.
3-2"×4" STUDS
LATH OR WALL FINISH

G. Build any door or window openings


2×12 HEADER
NAIL TOGETHER WITH 16d NAILS
FULL STUD
DOOR
TRIMMER STUD


2×8 HEADER
WINDOW

H. Nail studs, corners, door and window openings to bottom and top plates



I. Figure number of rough sills and cripples for window openings

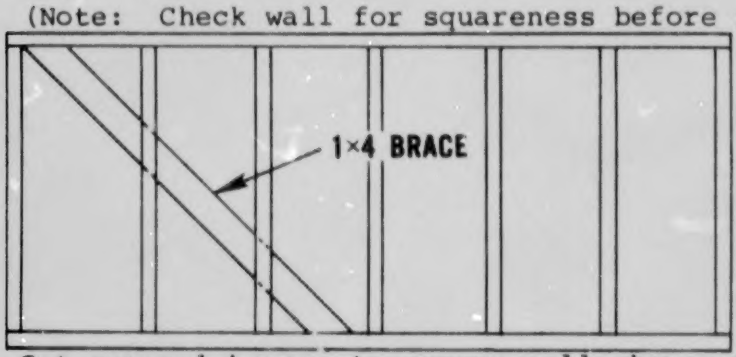
J. Cut rough sills and cripples to length

K. Nail rough sills and cripples in place

L. Measure and cut diagonal wind braces

M. Nail wind braces in place

(Note: Check wall for squareness before nailing.)



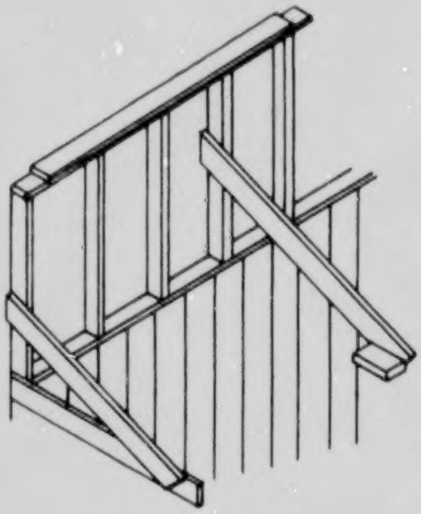
N. Cut several braces to secure wall when raising

O. Tack braces in place on wall

P. Raise wall

(Caution: Be sure to have enough people to raise the wall safely.)

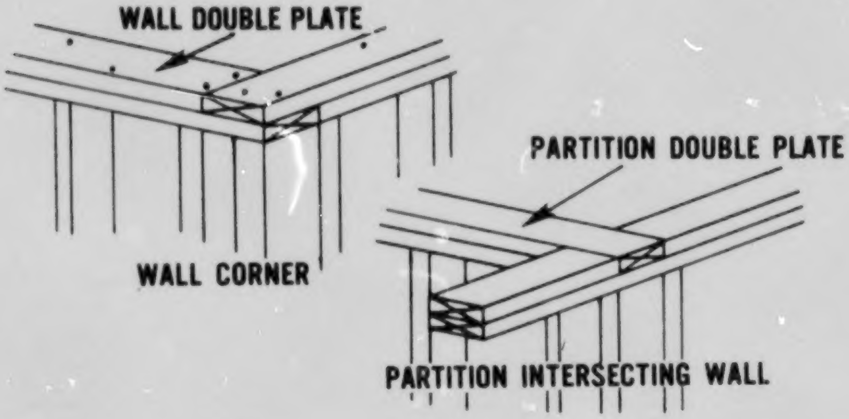
Q. Secure the temporary braces to the floor or outside the building



R. Repeat the preceding procedures on other walls

S. Tack corners and "T"s together at wall intersections

T. Nail double plates in place


WALL DOUBLE PLATE
PARTITION DOUBLE PLATE
WALL CORNER
PARTITION INTERSECTING WALL

U. Plumb all walls

V. Nail all wind braces, corners, and "T"s securely

W. Add any temporary braces necessary

UNIT V

FRAMING

JOB SHEET #4--FRAME A CEILING

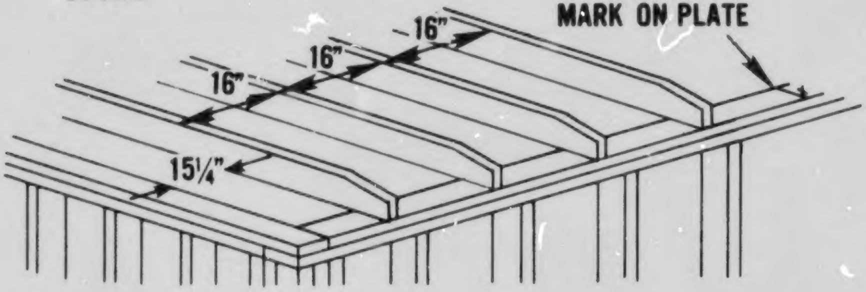
I. Tools and equipment required:

- A. Portable electric saw
- B. 13 oz. hammer
- C. 50-foot tape
- D. 16d nails
- E. Blueprint
- F. Materials according to the blueprint
- G. Framing square
- H. Pencil

II. Procedure:

(Caution: Do not walk on double plates without non-slip shoes or boots.)

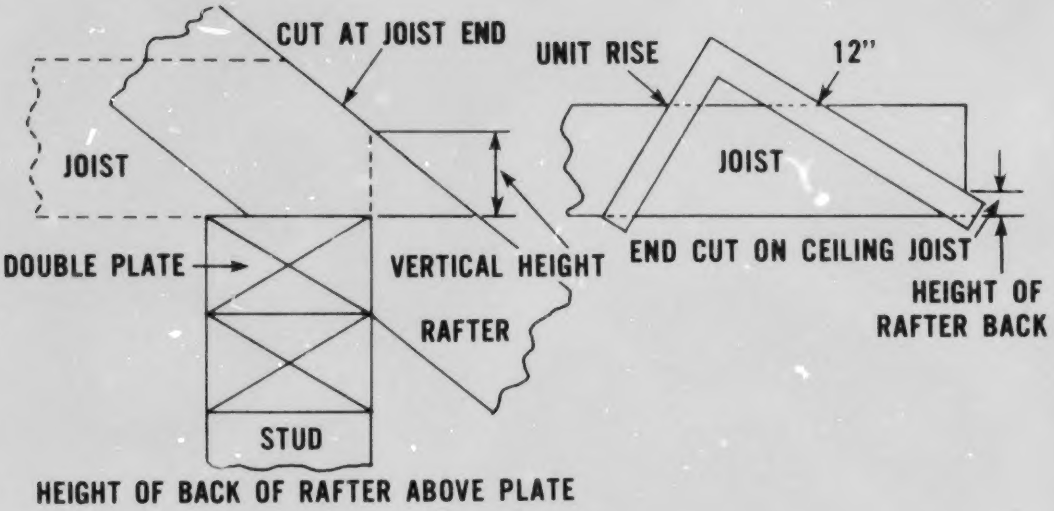
A. Layout the double plates for ceiling joist locations



B. Cut material for joists to length

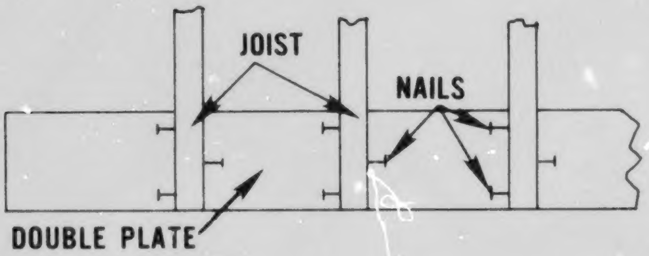
C. Cut the ends of the joists to the correct roof pitch and rafter height

(Note: Cut rafters so that the "crown" of the board will be up.)


CUT AT JOIST END
JOIST
DOUBLE PLATE
VERTICAL HEIGHT
RAFTER
STUD
UNIT RISE
12"
JOIST
END CUT ON CEILING JOIST
HEIGHT OF RAFTER BACK

HEIGHT OF BACK OF RAFTER ABOVE PLATE

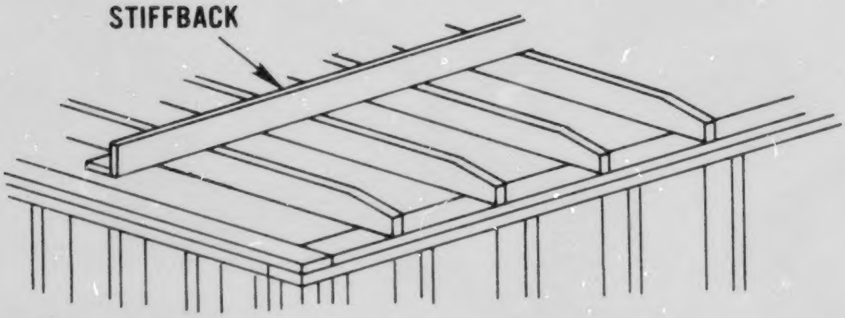
D. Toenail each joist with three nails


JOIST
NAILS
DOUBLE PLATE

E. Layout and cut material for a stiffback

(Note: A stiffback is not required on small buildings.)

F. Nail stiffback in place



UNIT V

FRAMING

JOB SHEET #5--FRAME A ROOF

I. Tools and equipment required:

   A. Portable electric saw

   B. 13 oz. hammer

   C. 50-foot tape

   D. 16d nails

   E. Blueprint

   F. Material according to the blueprint

   G. Framing square

   H. Pencil

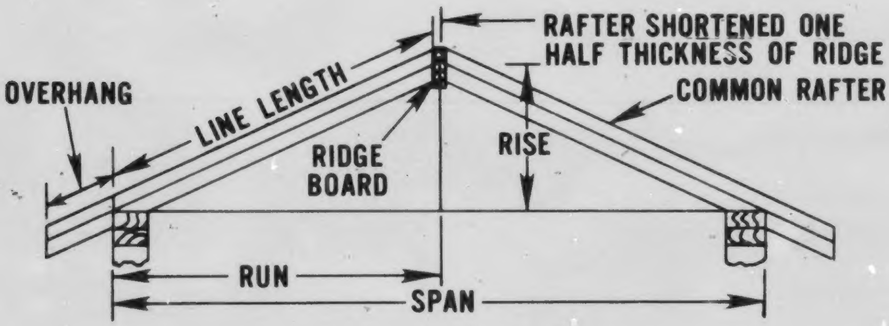
II. Procedures

   A. Layout a rafter according to blueprint

   (Note: The crown of the board should be to the top.)

   B. Cut the rafter to the correct length

   (Note: Remember to subtract 1/2 the thickness of the ridge board.)


RAFTER SHORTENED ONE HALF THICKNESS OF RIDGE
OVERHANG
LINE LENGTH
COMMON RAFTER
RIDGE BOARD
RISE
RUN
SPAN

C. Check the first set of rafters for proper fit

(Note: The first rafters should be exact, so that they may be used as patterns.)

D. Layout the remaining rafters

E. Cut the remaining rafters

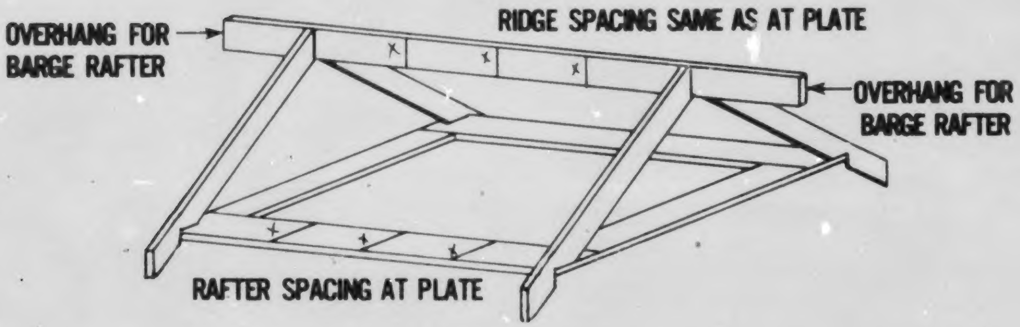
(Note: Let rafter tails run wild.)

F. Lay out the ridge board

(Note: Remember to extend the ridge board past the ends of the building if an overhang is required.)

G. Nail the end rafters in place

(Note: Nail the rafters to the double plate first and then the ridge board to ensure proper fit.)


OVERHANG FOR BARGE RAFTER
RIDGE SPACING SAME AS AT PLATE
OVERHANG FOR BARGE RAFTER
RAFTER SPACING AT PLATE

H. Nail the other rafters in place

I. Add temporary bracing where necessary

J. Nail on permanent bracing and blocking

K. Tail off rafters to length shown on blueprint

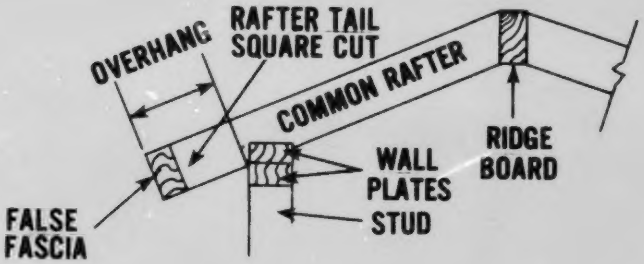
(Note: Check blueprint to see if rafters should be square or plumb cut.)

(Caution: Be careful not to bind the saw when cutting rafter tails.)

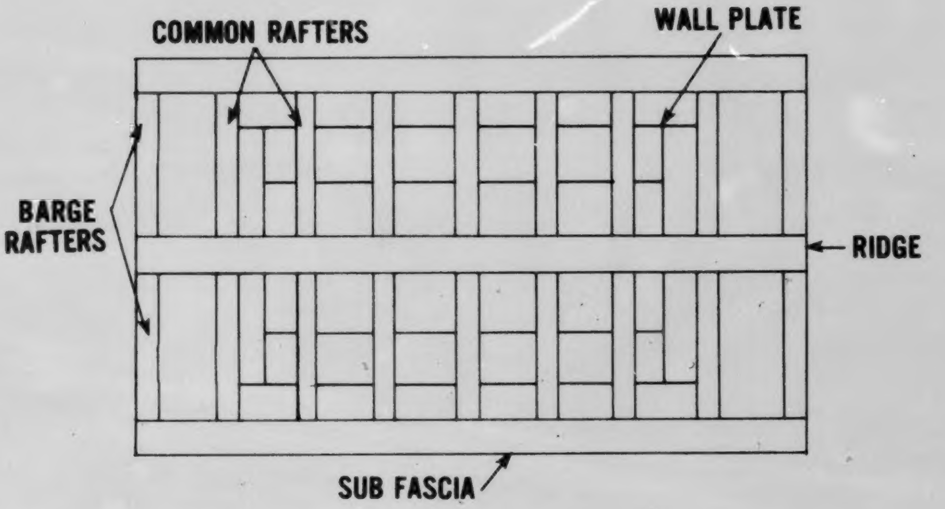
L. Layout and cut sub-fascia

M. Nail on sub-fascia

(Note: Allow overhang for barge rafters.)


OVERHANG
RAFTER TAIL SQUARE CUT
COMMON RAFTER
RIDGE BOARD
WALL PLATES
STUD
FALSE FASCIA

N. Nail on barge rafters


COMMON RAFTERS
WALL PLATE
BARGE RAFTERS
RIDGE
SUB FASCIA

UNIT V

FRAMING

JOB SHEET #6--LAY ROOF SUB-COVERING

I. Tools and equipment required:

   A. Portable electric saw

   B. 13 oz. hammer

   C. 16-foot tape

   D. Chalk line

   E. Framing square

   F. Pencil

   G. Material according to blueprint

   H. Blueprint

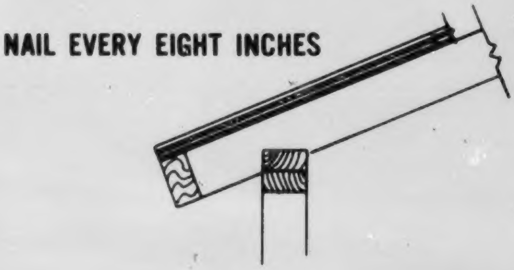
II. Procedure

(Note: Check the blueprint to see what type of sub-covering is to be used.)

   A. For applying plywood decking:

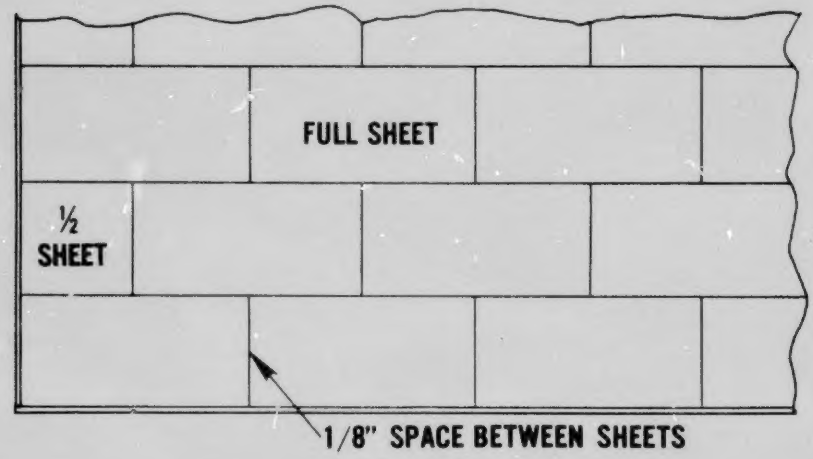
      1. Strike a line with the chalkline to ensure squareness

      2. Nail the first sheet in place along the line and flush with the sub-fascia and barge rafter



      3. Nail the remaining sheets in place staggering the joints

(Note: Provide about 1/8" space between joints or use clips if available.)


FULL SHEET
½ SHEET
1/8" SPACE BETWEEN SHEETS

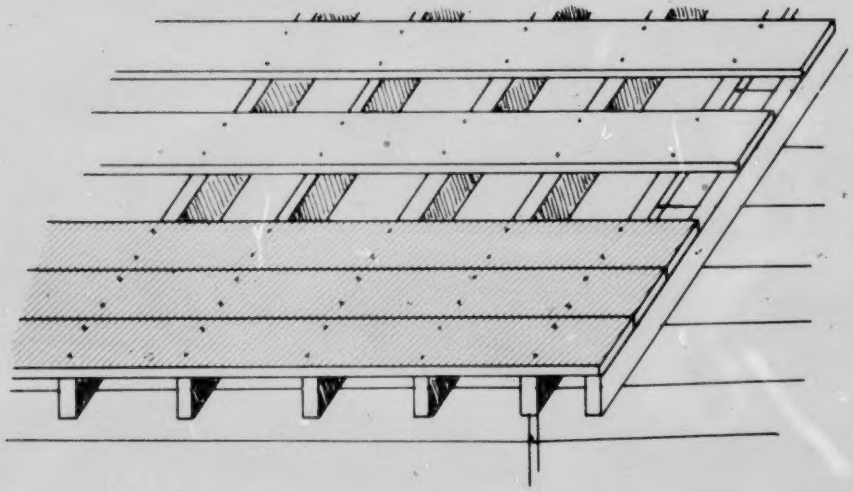
4. Trim edges of plywood from overhang

   (Caution: Sweep sawdust from decking because sawdust is very slippery.)

B. For applying wood lathe:

   1. Strike a line with the chalkline to ensure squareness

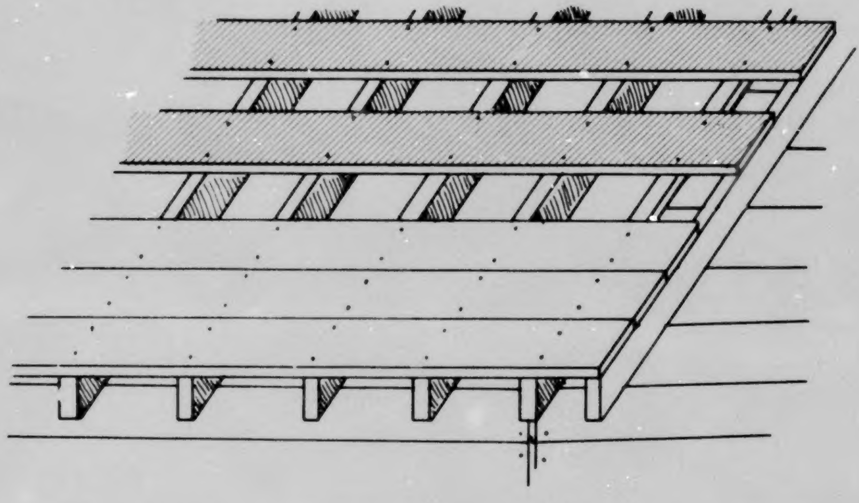
   2. Nail three solid rows of lathe at the bottom edge of the roof



3. Nail the remaining lathe on 7-inch centers

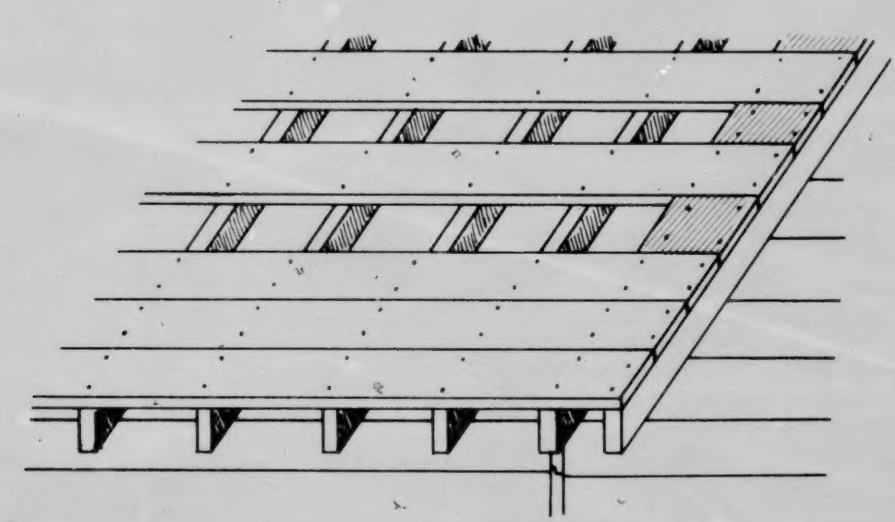
(Note: A 1" x 4" can be used as a spacer instead of laying out each line.)

(Caution: Watch your step because it is very easy to step through openings in the lathe.)



4. Nail a double row on each side of the ridge

5. Overhangs should be filled in until solid



UNIT V

FRAMING

UNIT TEST

1. Match the terms associated with framing to the correct definitions. Place the number of each term in the correct blank.

____a. Used with temporary nails are not driven completely into the wood

____b. Refers to the top side of a bend in material

____c. Used to describe rafter tails when cutting them to length

____d. When rafter tails are cut off squarely

____e. Where rafter tails are cut off where the ends are plumb

____f. A true vertical line

____g. To build at a factory before use on the job site

____h. Nail a board to an adjoining board by nailing from the side of the board

1. Plumb
2. Toenail
3. Plumb cut
4. Tack
5. Tail off
6. Crown
7. Prefabricate
8. Square cut

2. Identify each of the parts of house framing by writing the number of the correct explanation in front of each part listed below.

____a. Floor joist

____b. Joist header

____c. Bridging

____d. Sub-flooring

1. The main supporting members of the floor
2. The horizontal member below a rough window opening

____e. Rough sill

____f. Girder

____g. Diagonal or wind brace

____h. Stiffback

____i. Barge rafter

____j. Ceiling joist

____k. Ridge

____l. Rafter

____m. Truss

3. A prefabricated roof unit consisting of the ceiling joist, rafters and braces

4. Used to insure proper alignment of the ceiling joist

5. Runs along the center of the building to add strength to the floor joist

6. The framing member that forms the roof of a building

7. The framing member on each side of a building to which the floor joist are nailed

8. Plywood or solid wood used to add strength and to provide a working surface

9. The framing member which extends across a room or building and is nailed to the double plate

10. Diagonal or solid blocking used to stiffen the floor joist where they will not move from side to side

11. The rafter which extends beyond the wall of a building, forming the overhang

12. The center member of the roof to which the rafters are nailed

13. Usually a 1" x 4" or 1" x 6" used to give wind resistance to a wall

3. Identify each of the parts of a simple truss. Write the correct term in each of the blanks below.

Compression web
Tension webb
Gusset
Top cord
Bottom cord

a. The ____________________ of the truss serves as the rafter.

b. The ____________________ of the truss serves as the ceiling joist.

c. A piece of wood used to fasten two members of a truss together is called a ______________.

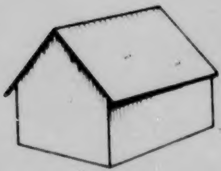
d. The ridge of a truss is connected by the __________ to the joist.

e. The ____________________ gives added support to the middle of the rafter.

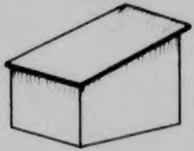
4. Point out the different types of roofs by labeling each of the pictures with one of the following names.

Gable
Hip
Shed
Hip and valley
Gable and valley

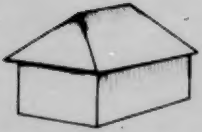
a.



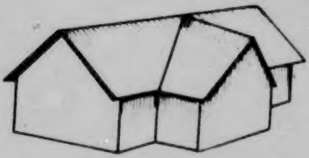
b.



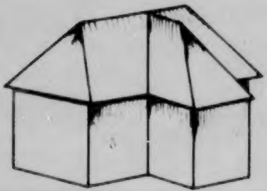
c.



d.

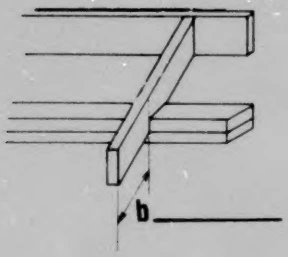


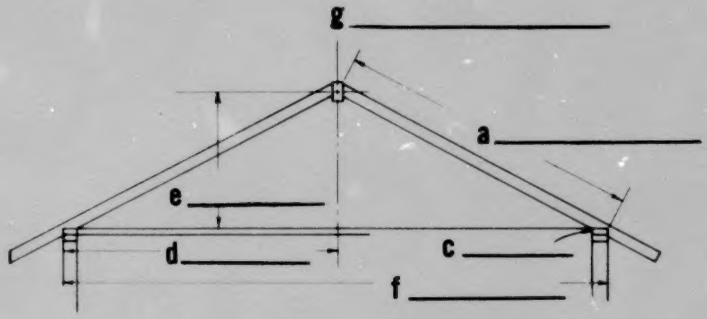
e.



5. Point out each of the parts of a roof by writing the name of each part in the blank provided.

Run	Center line of ridge
Span	Rise
Plate	Tail
Length of rafter	

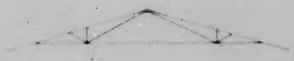




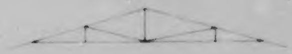
6. Identify each of the types of trusses used in building construction. Label each of the pictures with one of the following names.

Howe	Kingpost
Fink	Fan

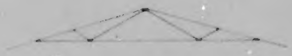
a.



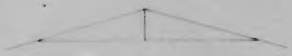
b.



c.

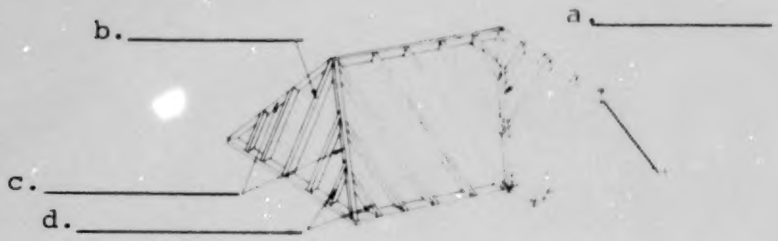


d.



7. Point out the types of rafters used in roof construction. Label each rafter in the picture with one of the following names.

Hip
Jack
Common
Valley



8. Demonstrate the ability to:

   a. Frame a floor.

   b. Lay subflooring.

   c. Frame a wall.

   d. Frame a ceiling.

   e. Frame a roof.

   f. Lay roof sub-covering.

   (Note: If these activities have not been accomplished prior to the test, ask the instructor when they should be completed.)

UNIT V

FRAMING

ANSWERS TO TEST

1. a. 4
   b. 6
   c. 5
   d. 8
   e. 3
   f. 1
   g. 7
   h. 2

2. a. 1
   b. 7
   c. 10
   d. 8
   e. 2
   f. 5
   g. 13
   h. 4
   i. 11
   j. 9
   k. 12
   l. 6
   m. 3

3. a. Top cord
   b. Bottom cord
   c. Gusset
   d. Tension web
   e. Compression web

4. a. Shed
   b. Gable
   c. Hip
   d. Gable and valley
   e. Hip and valley

5. a. Length of rafter
   b. Tail
   c. Plate
   d. Run
   e. Rise
   f. Span
   g. Center line of ridge

6. a. Fan
   b. Howe
   c. Fink

d. Kingpost

7. a. Valley
   b. Common
   c. Hip
   d. Jack

8. Evaluated to the satisfaction of the instructor.

UNIT VI

ROOFING

UNIT OBJECTIVE

After completing this unit, the student will be able to identify the terms used in roofing and lay the different types of roofing materials used in construction. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with roofing to the correct definition
2. Point out each of the types of roofing
3. Point out the types of composition shingles
4. Point out the types of sheet metal roofing
5. Point out the types of wood shingles
6. Demonstrate the ability to:
    a. Lay composition shingles
    b. Lay sheet metal roofing
    c. Lay wood shingles

UNIT VI

ROOFING

SUGGESTED ACTIVITIES

I. Instructor

   A. Discuss unit objective

   B. Provide students with information and job sheets

   C. Prepare transparencies and lesson plan

   D. Discuss information and job sheets

   E. Demonstrate the procedures outlined in the job sheets

   F. Have students perform the procedures outlined on the job sheets

   G. Plan a field trip to several job sites to show students each of the types of roofing used in construction

   H. Give test

   I. Review problem areas pointed out by the test

II. Students

   A. Discuss questions of unit objective

   B. Read and discuss information and job sheets

   C. Complete job sheets

   D. Observe the different types of roofing used in construction

   E. Take test

   F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit

   A. Objectives

- B. Information sheet
- C. Transparency masters
  - 1. TM-1--Composition Roofing
  - 2. TM-2--Types of Sheet Metal Roofing
  - 3. TM-3--Types of Wood Shingles
- D. Job sheets
  - 1. Job Sheet #1--Lay Composition Shingles
  - 2. Job Sheet #2--Lay Sheet Metal Roofing
  - 3. Job Sheet #3-- Lay Wood Shingles
- E. Test
- F. Answers to test

II. References

A. Watson, Don A. Construction Materials and Processes. New York, New York: McGraw-Hill Book Company.

B. Carlson, G. E. and Putman, R.E. Architectural and Building Trades Dictionary. Chicago, Illinois: American Technical Society. Third edition.

UNIT VI

ROOFING

INFORMATION SHEET

I. Terms and definitions

   A. Square--a roofing term meaning a surface area of 10 feet by 10 feet, or 100 square feet

      (NOTE: Composition shingles are sold in 1/3 square bundles.)

   B. Flashing--a sheet metal, plastic, or lead shield used in roofing construction for protection from water seepage around vents, chimneys, and roof edges

   C. Roofing felt--tar-saturated material, usually 36 inches wide, used as a vapor barrier

      (NOTE: Felt is sold in 15 or 30-pound thicknesses, which indicates the weight per square foot.)

   D. Metal drip edge--metal stripping that fits over the gable edges and eaves of a roof to prevent the wood from rotting

   E. Valley tin--thin, flat galvanized sheet metal, usually 18 inches wide, which is applied where two roof slopes meet

   F. Underlayment--a row of shingles turned with the notches toward the ridge of the roof and laid along the eave

   G. Lath--thin strips of wood nailed to rafters or joists to provide a nailing surface for a covering

II. Types of roofing

   A. Composition or asphalt shingles

      1. Asphalt or tar pitch-saturated felt

      2. Covered with crushed slate

      3. Available in various sizes, styles, and patterns

B. Wood shingles

1. Cedar roofing planks
2. Lengths-16, 18, or 24 inches
3. Widths-3 to 14 inches
4. Packaged four bundles to a square

C. Shakes

1. Handsplit heavy cedar shingles
2. Edge-grained and rough in appearance
3. Packaged four bundles to a square

D. Sheet metal roofing

1. Galvanized iron, aluminum, or tin
2. Corrugated or ribbed
3. Used on farm buildings and commercial shops
4. Available in various widths, lengths, and colors

E. Roll roofing

1. Asphalt or tar-saturated felt
2. Covered with crushed slate
3. Available in various colors
4. Roll contains approximately 108 square feet

F. Built-up roofing

1. Three to five layers of roofing felt
2. Saturated with roofing tar
3. Covered with small gravel
4. Used on flat or low-pitched roofs

III. Types of composition shingles

A. Seal down

   - B. T lock
   - C. Thick butt

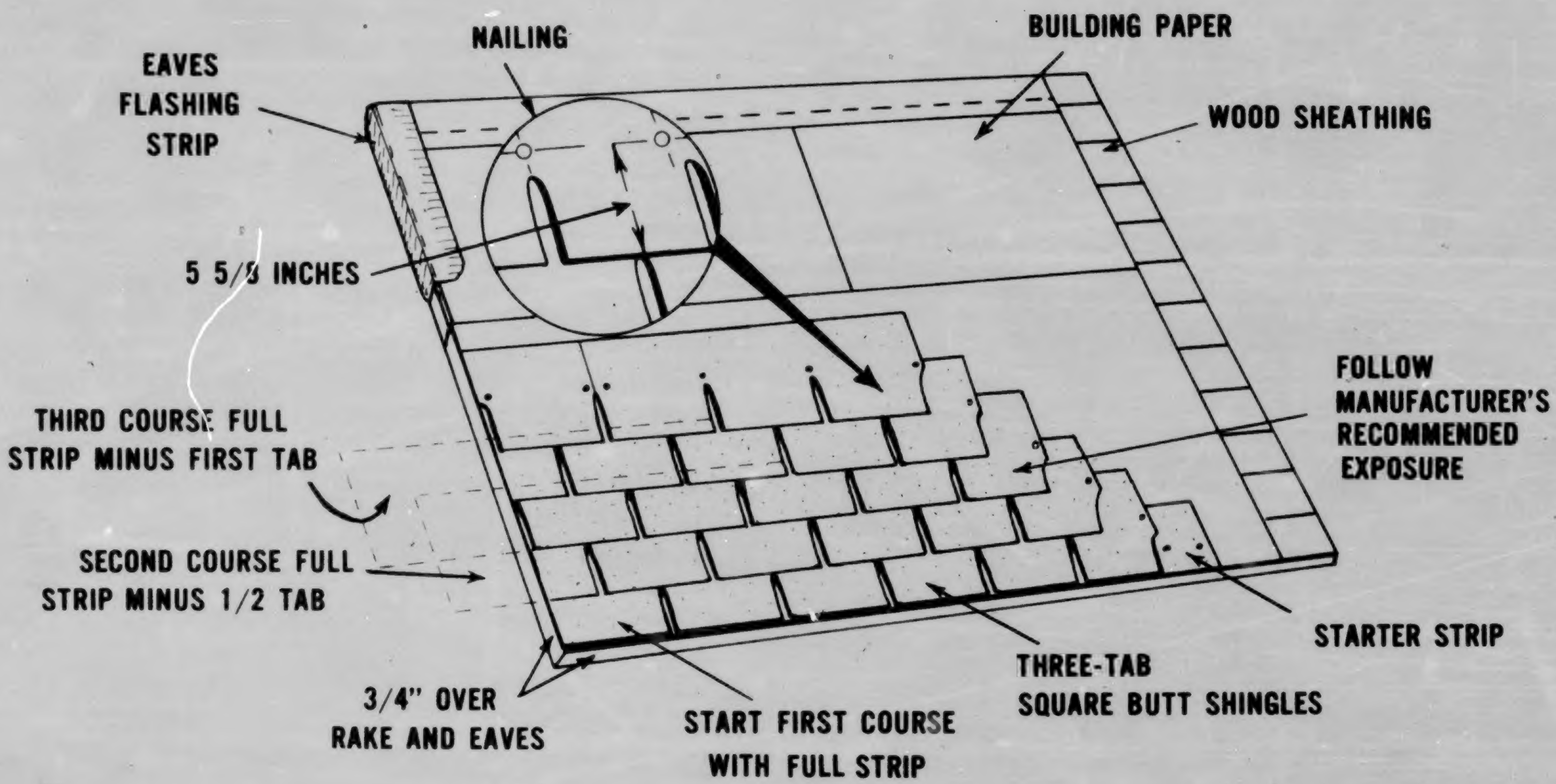
IV. Types of sheet metal roofing

   - A. Corrugated
   - B. Ribbed
   - C. Wide ribbed

V. Types of wood shingles

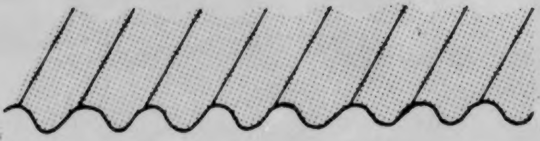
   - A. Standard
   - B. Shakes
   - C. Junior Shakes

COMPOSITION SHINGLES

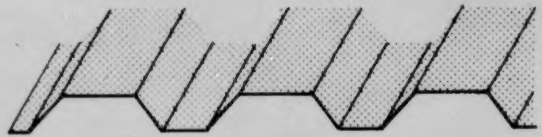

NAILING
EAVES FLASHING STRIP
BUILDING PAPER
WOOD SHEATHING
5 5/8 INCHES
FOLLOW MANUFACTURER'S RECOMMENDED EXPOSURE
THIRD COURSE FULL STRIP MINUS FIRST TAB
SECOND COURSE FULL STRIP MINUS 1/2 TAB
STARTER STRIP
3/4" OVER RAKE AND EAVES
START FIRST COURSE WITH FULL STRIP
THREE-TAB SQUARE BUTT SHINGLES

604

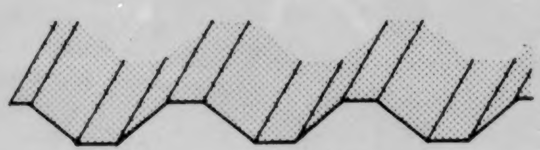
TYPES OF SHEET METAL



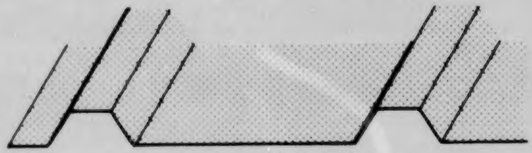
CORRUGATED



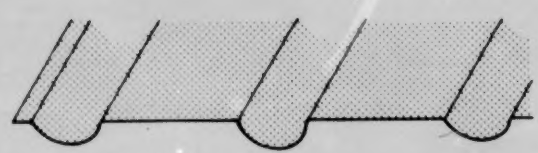
RIBBED



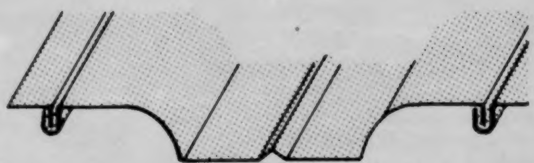
V BEAM



WIDE RIBBED

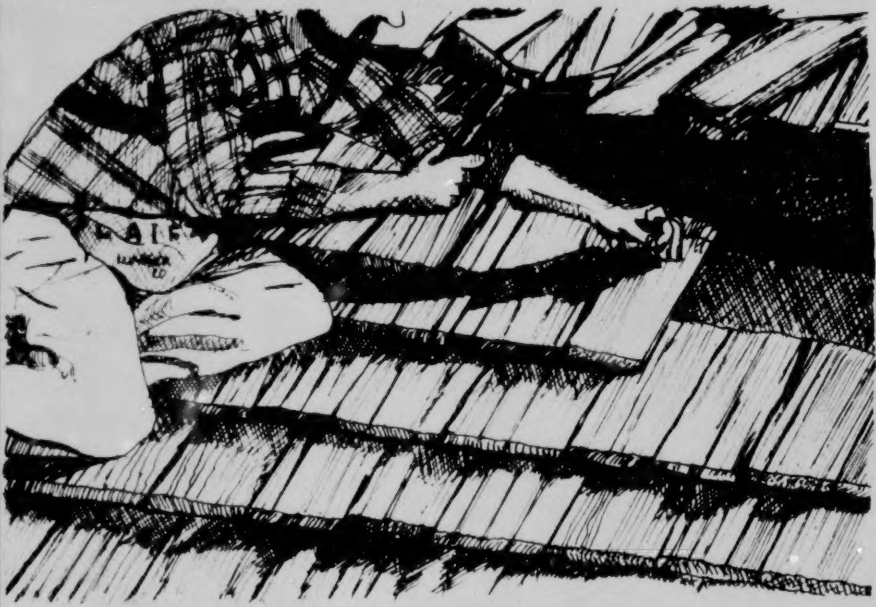


MANSARD

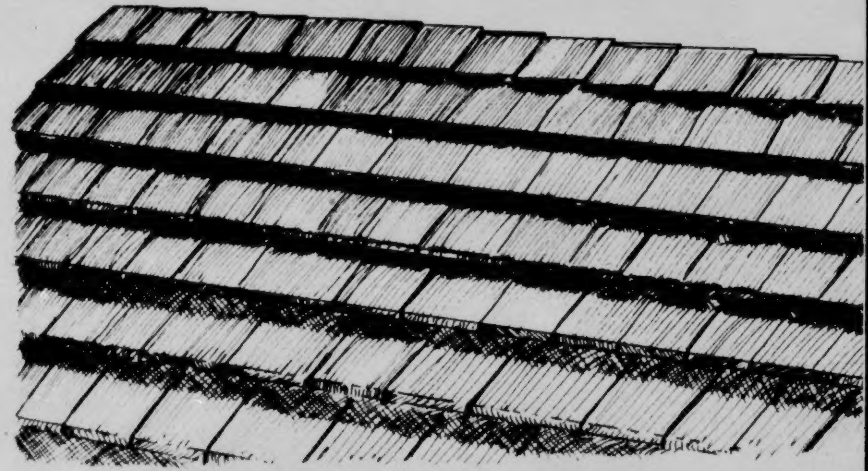


TYPICAL 12" PANEL

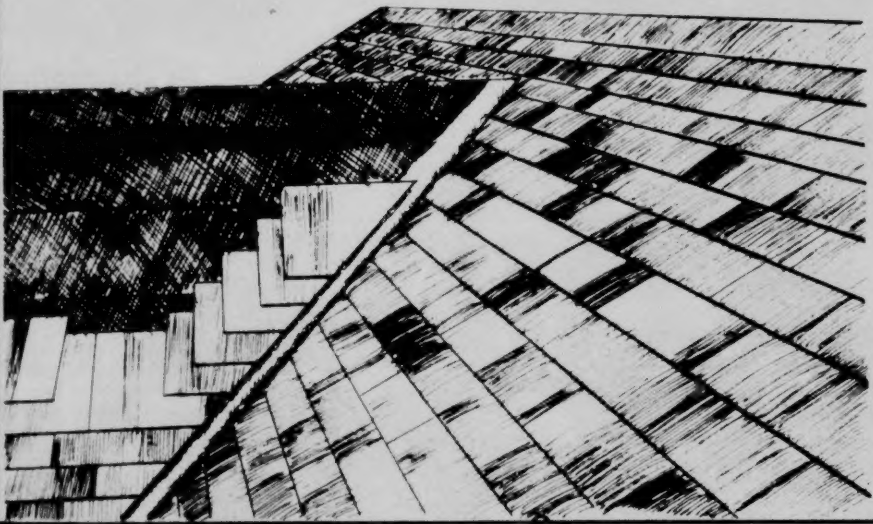
TYPES OF WOODEN SHINGLES



SHAKES



JUNIOR SHAKES



STANDARD

TM-3

UNIT VI

ROOFING

JOB SHEET #1--LAY COMPOSITION SHINGLES

I. Tools and materials required:

   A. 15 pound roofing felt

   B. 13 oz. claw hammer

   C. Metal drip edge

   D. Valley tin

   E. Nails

   F. Chalk line

   G. Utility knife

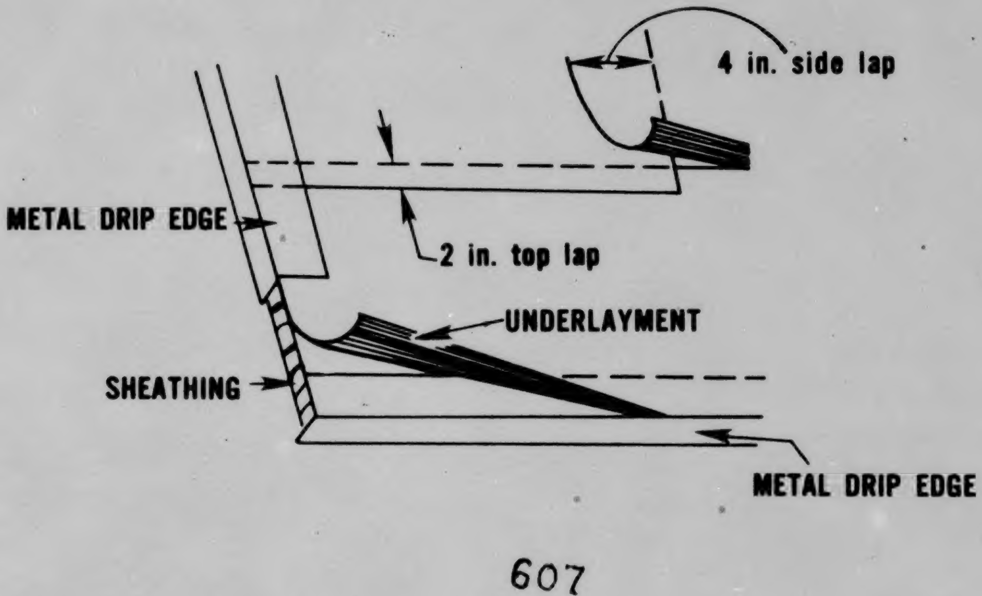
   H. Steel rule

II. Procedure

(CAUTION: Be aware of your location at all times because it is easy to fall.)

   A. Lay felt paper with recommended overlap.

(NOTE: Nail roofing felt in place with felt nails or staples.)

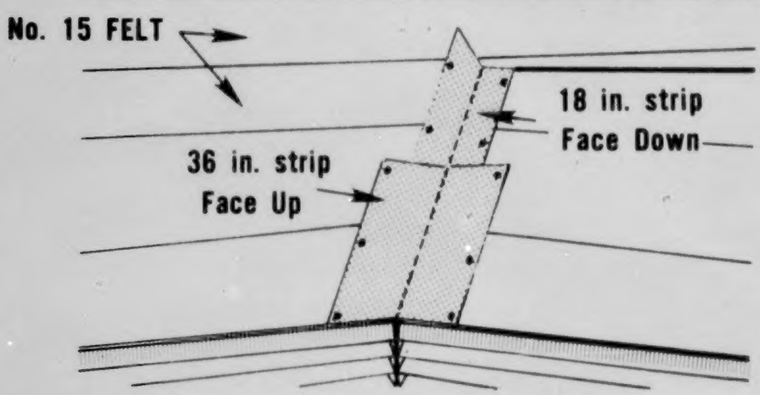

4 in. side lap
METAL DRIP EDGE
2 in. top lap
UNDERLAYMENT
SHEATHING
METAL DRIP EDGE

B. Nail down metal drip edge.

(NOTE: Drip edge should be placed under the felt along the eaves.)

C. Nail down any valley tin required.

(CAUTION: The edges of tin are very sharp so never slide hands along the edges.)

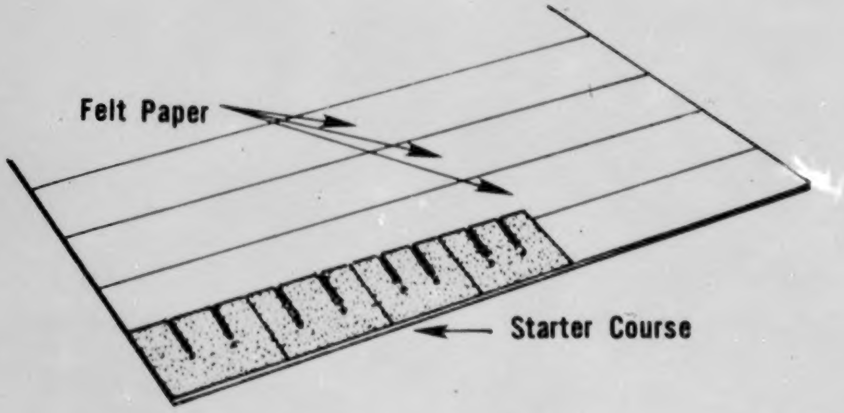

No. 15 FELT
18 in. strip
Face Down
36 in. strip
Face Up

D. Place flashings over any vents.

(NOTE: Do not nail down until shingles have been slid under the lower half of the flashing.)

E. Lay an underlayment of shingles with the notches toward the ridge.

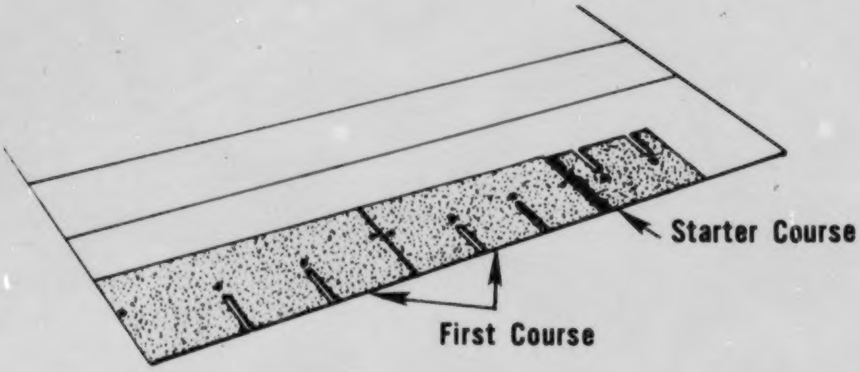
(NOTE: Let the shingles hang over the drip edge 1/4 to 1/2 inch and allow 1/4 inch space between all shingles in all courses.)


Felt Paper
Starter Course

F. Lay the first course of shingles.

(NOTE: Stagger the joints from the underlayment.)

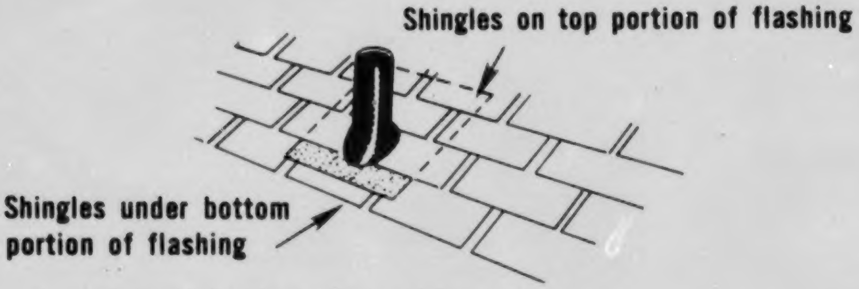
(CAUTION: When laying the first courses,you are leaning downhill so be careful to keep your balance.)


Starter Course
First Course

G. Lay the remainder of the courses.

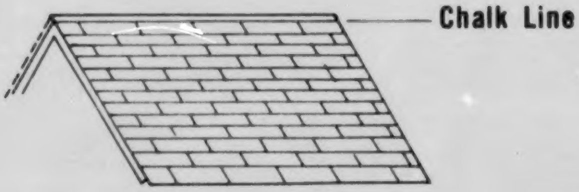
(NOTE: Follow the instructions on the shingle packaging.)

H. Place shingles under the lower half of flashings.

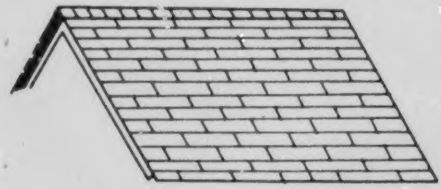

Shingles on top portion of flashing
Shingles under bottom portion of flashing

I. Cut shingles for ridge cap.

J. Strike a line for the ridge cap.



K. Lay the ridge cap.



L. Trim all overhanging shingles carefully.

M. Clean work area.

UNIT VI

ROOFING

JOB SHEET #2--LAY SHEET METAL ROOFING

I. Tools and materials required:

  A. Valley tin

  B. Tin snips

  C. Steel tape or folding rule

  D. 13 oz. claw hammer

  E. Lead-headed roofing nails

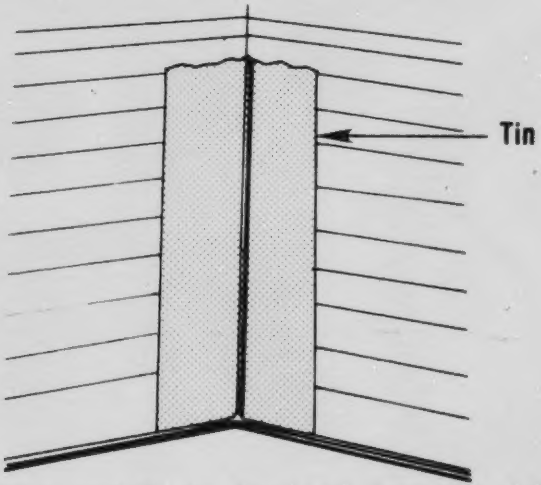
II. Procedure

(CAUTION: Be aware of your location at all times because it is easy to fall.)

  A. Lath the roof

    (NOTE: Refer to Job Sheet #6 in Unit 5 for procedure.)

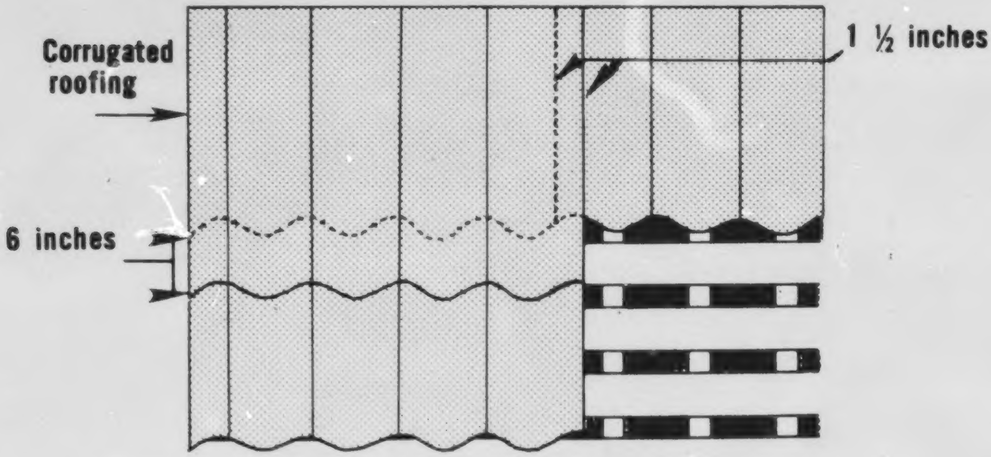
  B. Lay valley tin if required.



  C. Cut sheet metal to desired lengths if necessary.

D. Nail roofing in place.

(NOTE: End laps should be at least 6 inches and side laps should be at least 1 1/2 inches.)


Corrugated roofing
1 ½ inches
6 inches

E. Nail ridge cap in place.

(NOTE: Do not nail in the valley of metal roofing.)

F. Clean work area.

UNIT VI

ROOFING

JOB SHEET #3--LAY WOOD SHINGLES

I. Tools and materials required:

- A. Wood shingles
- B. 13 oz. claw hammer
- C. Flashings necessary
- D. Nails
- E. Valley tin
- F. Lath
- G. Shingle mold

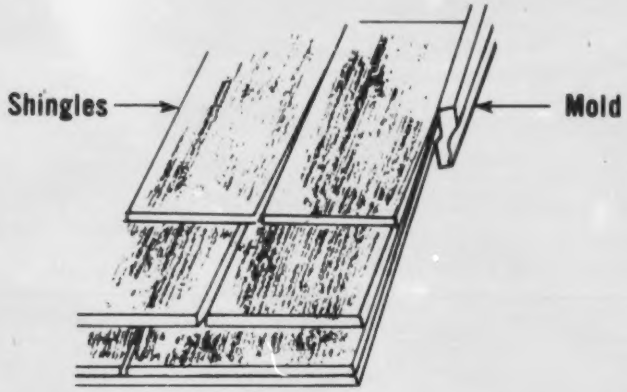
II. Procedure

(NOTE: Be aware of your location at all times because it is easy to fall.)

A. Lath the roof.

(NOTE: Refer to Job Sheet #6 in Unit 5 for procedure.)

B. Nail metal edge or shingle mold in place.



C. Lay valley tin and nail in place if necessary.

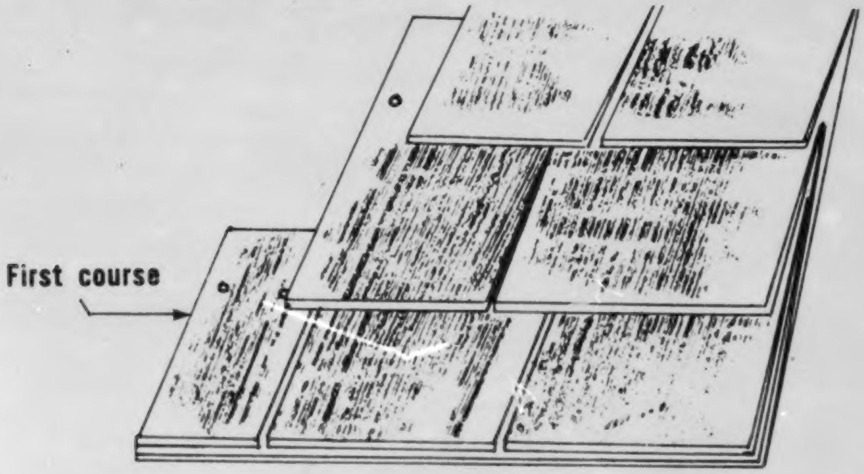
(CAUTION: The edges of tin are very sharp so never slide your hands along the edges.)

D. Place flashings over any vents.

(NOTE: Do not nail down until shingles have been nailed in place under bottom half of flashing.)

E. Lay wood shingles.

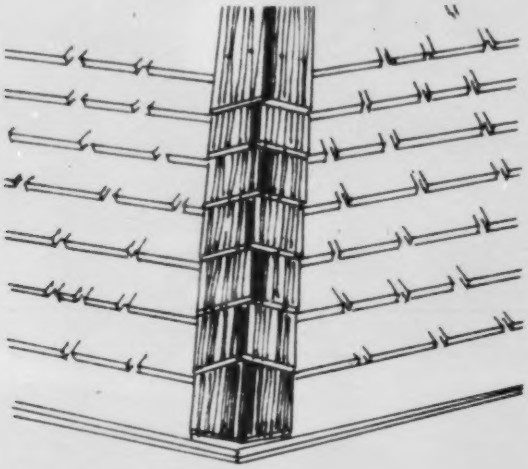
(NOTE: The first course should be doubled with the joints alternated.)



F. Lay shingles under the bottom half of any flashings.

G. Nail ridge rows in place.

(NOTE: Special-cut ridge rows are available.)



H. Clean work area.

UNIT VI

ROOFING

UNIT TEST

1. Match the terms associated with roofing to the correct definition. Place the number of each term in the correct blank.

____a. A roofing term meaning a surface area of 10 feet by 10 feet, or 100 square feet

____b. A sheet metal, plastic, or lead shield used in roofing construction for protection from water seepage around vents, chimneys, and roof edges

____c. Tar-saturated material, usually 36 inches wide, used as a vapor barrier.

____d. Metal stripping that fits over the gable edges and eaves of a roof to prevent the wood from rotting

____e. Thin, flat galvanized sheet metal, usually 18 inches wide, which is applied where two roof slopes meet

____f. A row of shingles turned with the notches toward the ridge of the roof and laid along the eave.

____g. Thin strips of wood nailed to rafters or joists to provide a nailing surface for a covering

1. Valley tin
2. Square
3. Metal drip edge
4. Lath
5. Roofing felt
6. Underlayment
7. Flashing

2. Point out each of the types of roofing from the description given below. Underline the name on the left that matches the description on the right.

a.	Roll roofing Composition shingles	1. Asphalt or tar-saturated felt 2. Covered with crushed slate 3. Available in various sizes, styles, and patterns
b.	Wood shingles Shakes	1. Cedar roofing planks 2. 16, 18, 24 inches in length 3. 3 to 14 inches in width 4. 4 bundles to a square
c.	Wood shingles Shakes	1. Handsplit heavy cedar shingles 2. Edge grained and rough in appearance 3. 4 bundles to a square
d.	Built-up roofing Sheet metal roofing	1. Available in various widths, lengths, and colors 2. Used on farm buildings and commercial shops 3. Corrugated or ribbed 4. Galvanized iron, aluminum, or tin
e.	Composition shingles Roll roofing	1. Asphalt or tar-saturated felt 2. Covered with crushed slate 3. Available in various colors 4. Roll contains 108 square feet
f.	Built-up roofing Roll roofing	1. Saturated with roofing tar 2. Covered with small gravel 3. Used on flat or low pitched roofs 4. Three to five layers of roofing felt

3. Point out the types of composition shingles by writing the number of each in the blanks provided below. (Questions 3-5)

   a.

   b.

   c.

4. Point out the types of sheet metal roofing.

   a.

   b.

   c.

5. Point out the types of wood shingles.

   a.

   b.

   c.

1. Shakes
2. Ribbed
3. Standard
4. T lock
5. Wide ribbed
6. Thick butt
7. Junior shakes
8. Seal down
9. Corrugated

6. Demonstrate the ability to:

   a. Lay composition shingles.

   b. Lay sheet metal roofing.

   c. Lay wood shingles.

   (NOTE: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT VI

ROOFING

ANSWERS TO TEST

1. a. 2
   b. 7
   c. 5
   d. 3
   e. 1
   f. 6
   g. 4

2. a. Composition shingles
   b. Wood shingles
   c. Shakes
   d. Sheet metal roofing
   e. Roll roofing
   f. Built-up roofing

3. a. 4
   b. 6
   c. 8

4. a. 2
   b. 5
   c. 9

5. a. 1
   b. 3
   c. 7

6. Evaluated to the satisfaction of the instructor.

UNIT VII

EXTERIOR WALL COVERINGS

UNIT OBJECTIVE

After completion of this unit, the student will be able to use the correct terms in selecting, identifying, and applying exterior wall coverings. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with exterior wall coverings to the correct definition
2. Select the correct type of sub-covering used in wall construction
3. Identify wood, hardboard, metal, and plywood sidings
4. Demonstrate the ability to apply siding

UNIT VII

EXTERIOR WALL COVERINGS

SUGGESTED ACTIVITIES

I. Instructor

   A. Discuss unit objective

   B. Provide students with information and job sheets

   C. Prepare transparencies and lesson plan

   D. Discuss information and job sheets

   E. Plan and make a field trip to a job site where exterior walls are being constructed

   F. Have students complete job sheets

   G. Give test

   H. Review problem areas pointed out by the test

II. Student

   A. Discuss any questions of unit objective

   B. Read and discuss information and job sheets

   C. Discuss the different methods of exterior wall construction

   D. Complete job sheet

   E. Take test

   F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit

   A. Objectives

   B. Information sheet

   C. Transparency master

      1. TM-1--Types of Siding

D. Job sheet

  1. Job Sheet #1--Apply Siding

E. Test

F. Answers to test

II. References

A. Wilson. Practical House Carpentry. New York, New York: McGraw-Hill. Second Edition.

B. Lair. Carpentry for the Building Trades. New York, New York: Webster Division, McGraw-Hill. Second Edition.

UNIT VII

EXTERIOR WALL COVERINGS

INFORMATION SHEET

I. Terms and definitions

   A. Gypsum--a mineral used in plaster and wall coverings

   B. Polystyrene--a plastic product used in molded products, foams, and sheet materials

   C. Saturated--when a material is completely soaked with a liquid-like product

   D. Porous--being full of cavities or tiny holes

   E. Primed--when a surface has the first of several coatings of paint or other protection

II. Types of Sub-Covering

   A. Fiberboard

      1. Made from sugarcane stalks

      2. Saturated with asphalt

      3. 4' x 8' sheets

      4. 1/2" thickness

   B. Gypsum sheathing (Gyp-Rock)

      1. Gypsum covered with asphalt-saturated paper on both sides

      2. Tongue and groove edges provide a seal

      3. 2' x 8' sheets

      4. 1/2" thickness

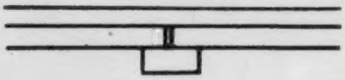
      5. Applied horizontally with staggered joints

   C. Polystyrene

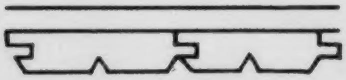
      1. Tongue and groove edges provide a seal

      2. 2' x 8' sheets

        3. 3/4" or 1" thickness
        4. Combustible when exposed to direct flame
    D. Foil covered polystyrene
        1. Porous plastic insulation board covered in foil
        2. 4' x 8' sheets
        3. 3/8" to 1 7/8" thickness
        4. Combustible when exposed to direct flame
    E. Plywood
        1. CD grade
        2. 4' x 8' sheets
        3. Usually 1/2" thickness
    F. Felt paper
        1. Rolls 36" wide
        2. Usually 15-pound thickness
III. Types of finish coverings
    A. Wood siding
        1. Vertical
            a. Board and batten

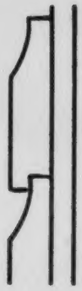


            b. Car siding

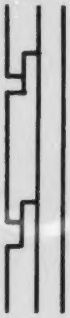


        2. Horizontal

a. 105 siding



b. Rough cedar (Lap and gap)



B. Hardboard siding

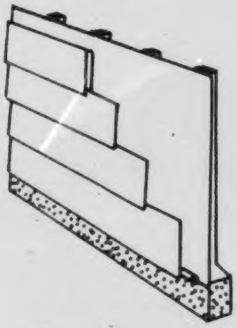
1. Horizontal

a. 12" to 16" widths

b. 1/2" to 7/16" thicknesses

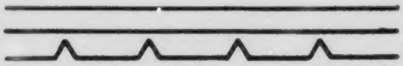
c. Unfinished, primed, or finished surfaces

d. Smooth or stamped finish



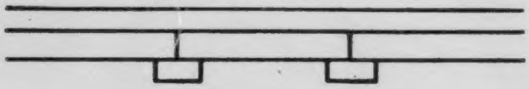
2. Vertical

a. V-grooved

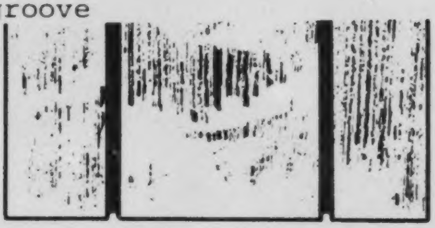


b. Board and batten

(Note: Usually 3/8" x 12")



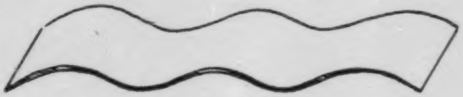
c. Decorative groove



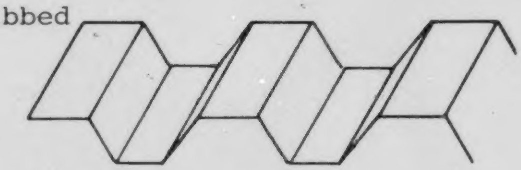
C. Metal Siding

(Note: Comes in various widths, colors, and lengths.)

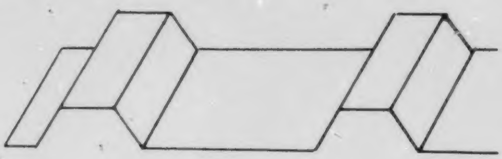
1. Corrugated



2. Ribbed



3. Wide ribbed



D. Plywood

1. 4' x 8' sheets

2. AC grade smooth

3. Cedar

   a. Ungrooved

   b. V-grooved

   c. Decorative groove

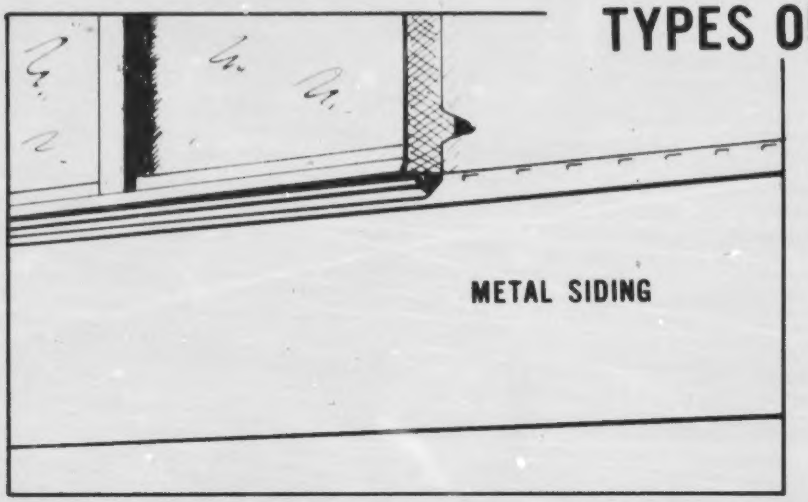
4. Fir

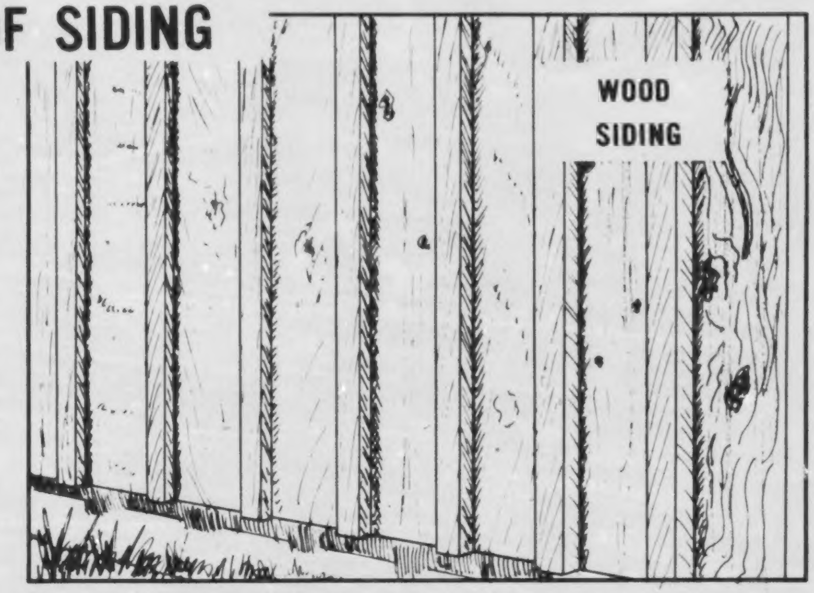
a. Ungrooved

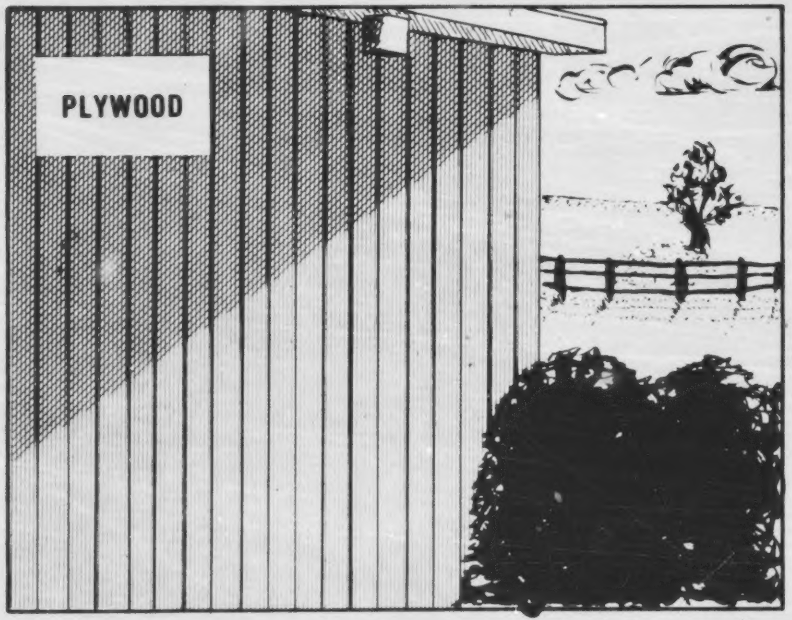
b. V-grooved

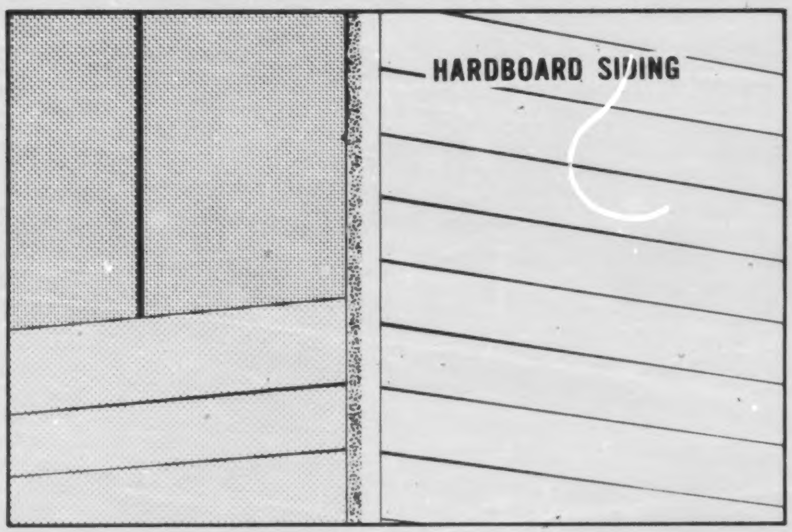
c. Decorative groove

TYPES OF SIDING


METAL SIDING


WOOD SIDING




HARDBOARD SIDING

UNIT VII

EXTERIOR WALL COVERINGS

JOB SHEET #1--APPLY SIDING

I. Tools, equipment, and materials required

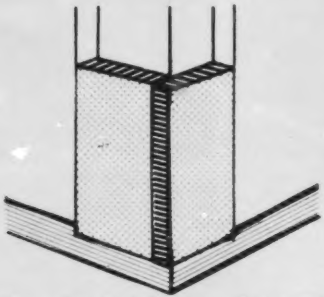
- A. Portable power saw
- B. Handsaw
- C. 13 oz. claw hammer
- D. Chalk line
- E. Steel tape
- F. Saw horses
- G. Framing square
- H. Try square
- I. Siding required by plans
- J. Nails
- K. Corner material
    - 1. Metal
    - 2. 1 x 4 lumber

II. Procedure

(Note: Most types of horizontal siding are applied except the starter piece.)

- A. Apply the sub-covering required by the plans.
- B. Prepare corners from 1 x 4s if required by plans.

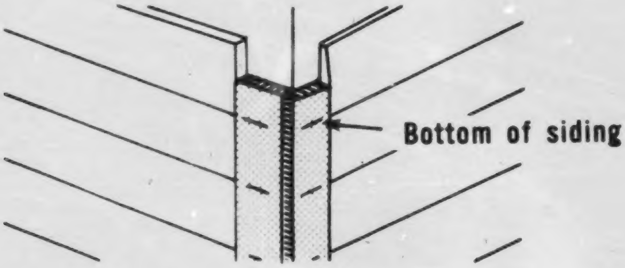
(Note: The bottom of trim boards should extend 1 inch below the bottom edge of the sheathing.)



C. Lay off the locations for the bottom of each piece of siding on the corner trim or sheathing.

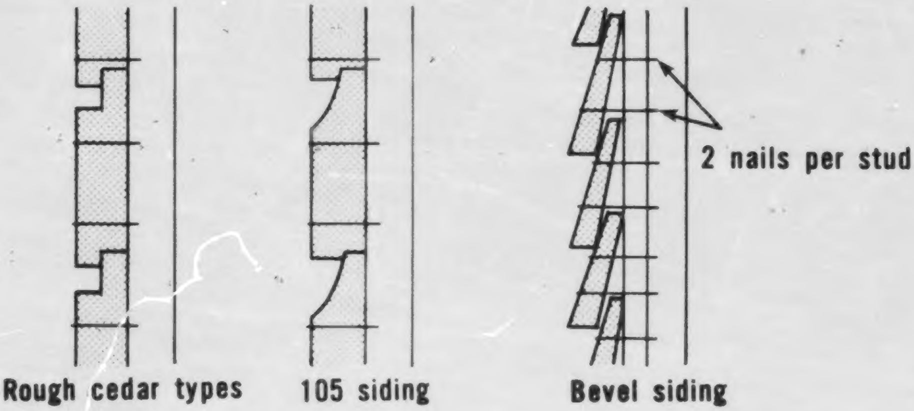
D. If lap siding is used, nail a furring strip along the bottom edge of the sheathing.

(Note: Lay a line with the chalk line along the top edge of the furring strip location to get the first siding strip straight.)

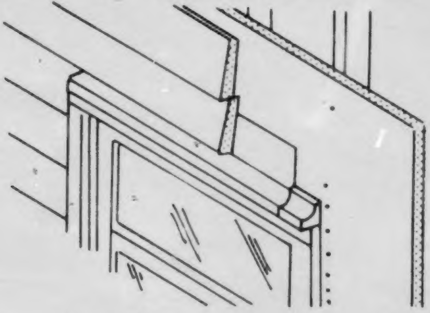

Bottom of siding

E. Nail the rest of the siding in place, from the bottom up.

(Note: Nail siding with 2 nails per stud and splice all joints on a stud.)


2 nails per stud
Rough cedar types
105 siding
Bevel siding

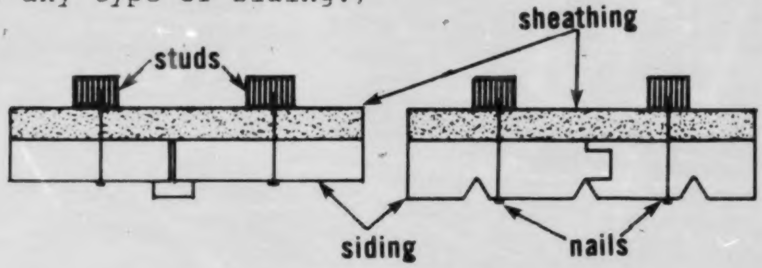
F. Cut and nail any trim around doors or windows.



G. For vertical sidings use the same procedure, except work from side to side and use no furring strips.

(Note: Hardboard and metal siding is the same basic procedure.)

(Caution: Make sure the starter siding is square for any type of siding.)



H. Caulk all joints around corners, doors, and windows, both inside and out.

I. Clean up scraps and work area.

UNIT VII

EXTERIOR WALL COVERINGS

UNIT TEST

1. Match the terms associated with exterior wall coverings to the correct definition. Place each number of the terms on the right in the correct blank.

   ____a. A mineral used in plaster and wall coverings

   ____b. A plastic product used in molded products, foams, and sheet materials

   ____c. When a material is completely soaked with a liquid like product

   ____d. Being full of cavities or tiny holes

   ____e. When a surface has the first of several coatings of paint or other protection

   1. Porous
   2. Primed
   3. Gypsum
   4. Saturated
   5. Polystyrene

2. Select the correct type of sub-covering used in wall construction by circling the correct answer for each statement below.

   a. (Fiberboard, felt paper) comes in rolls 36 inches wide and 15-pound thicknesses.)

   b. (Fiberboard, polystyrene) is make from sugar cane stalks and is saturated with asphalt.

   c. The material used for sub-coverings that comes in 4 x 8 foot sheets and in CD grade is (foil covered polystyrene, plywood).

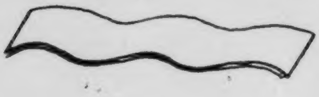
   d. The type of material that is combustable when exposed to direct flame is (Gypsum sheathing, polystyrene).

   e. The sub-covering polystyrene is usually covered on both sides with a (felt paper, foil) covering.

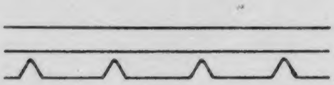
f. (Plywood, gypsum sheathing) is covered with asphalt saturated paper on both sides and is usually tongue and groove edged.

3. Identify wood, hardboard, metal, and plywood sidings from the drawings below. Write the name of each type of siding in the blank provided.

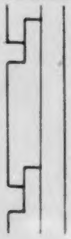
horizontal
V-Groove
wide ribbed
rough cedar
ribbed
105
car
fir grooved
board and batten
corrugated



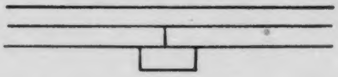
a. ____________________



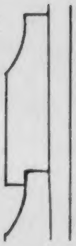
b. ____________________



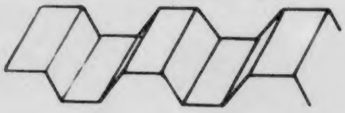
c. ____________________



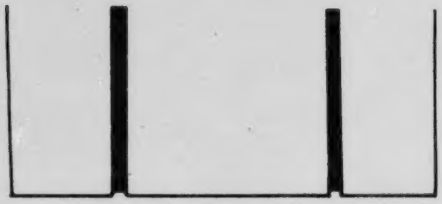
d. ____________________



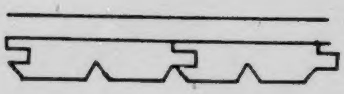
e. ____________________



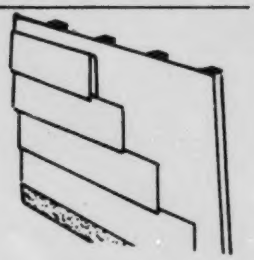
f. ____________________



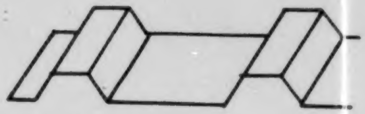
g. ____________________



h. ____________________



i. ____________________



j. ____________________

4. Demonstrate the ability to apply siding.

   (NOTE: If this activity has not been accomplished prior to the test, ask your instructor when it should be completed.)

UNIT VII

EXTERIOR WALL COVERINGS

ANSWERS TO UNIT TEST

1. a. 3
   b. 5
   c. 4
   d. 1
   e. 2

2. a. felt paper
   b. Fiberboard
   c. plywood
   d. polystyrene
   e. foil
   f. gypsum sheathing

3. a. corrugated
   b. V-groove
   c. rough cedar
   d. board and batten
   e. horizontal
   f. ribbed
   g. fir grooved
   h. car
   i. 105
   j. wide ribbed

4. Evaluated to the satisfaction of the instructor.

UNIT VIII

EXTERIOR TRIM

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify and install the different types of exterior trim using the correct terms. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit the student will be able to:

1. Match the terms associated with exterior trim to the correct definition
2. Identify the three common types of exterior wall trim
3. Identify the two types of cornices used in construction
4. Identify the parts of an open cornice
5. Identify the parts of a closed cornice
6. Demonstrate the ability to:
    a. Construct an open cornice on a gable roof
    b. Construct a closed cornice on a gable roof

UNIT VIII

EXTERIOR TRIM

SUGGESTED ACTIVITIES

I. Instructor:

   A. Discuss unit objective

   B. Provide students with information and job sheets

   C. Prepare transparencies and lesson plans

   D. Discuss information and job sheets

   E. Show students examples of exterior trim of various types

   F. Have students complete job sheets

   G. Give test

   H. Review problem areas pointed out by the test

II. Student:

   A. Discuss questions of unit objective

   B. Read and discuss information and job sheets

   C. Complete job sheets

   D. Discuss types of exterior trim used in construction

   E. Take test

   F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objectives

   B. Information sheet

   C. Transparency masters

      1. TM-1--Types of Cornices

    2. TM-2--Parts of an Open Cornice
    3. TM-3--Parts of a Box Cornice

D. Job Sheets

    1. Job Sheet #1--Construct an Open Cornice on a Gable Roof.
    2. Job Sheet #2--Construct a Box Cornice on a Gable Roof.

E. Test

F. Answers to test

II. References:

A. Carlson, G. E. and Putman, R. E. Architectural and Building Trades Dictionary. Chicago, Illinois: American Technical Society. Third edition.

B. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Gooheart-Wilcox Co., 1976.

UNIT VIII

EXTERIOR TRIM

INFORMATION SHEET

I. Terms and definitions

   A. Cornice--The trim around the ends of the rafters, including fascia, shingle mold, soffit, and frieze or brick mold

   B. Fascia--The horizontal member of a cornice that is attached to the rafter tails

   C. Shingle mold--A small piece of trim at the top of the fascia, usually 3/4 x 1½, used to keep the moisture off the fascia

   D. Soffit--The bottom member of a cornice made of plywood which covers the rafters

   E. Frieze mold--The cornice member which seals between the rafters and ceiling joists and covers the top edge of the siding

   F. Lookout--The member of a closed cornice to which the soffit is nailed

   G. Ledger--The member of a cornice that attaches the lookout to the wall

II. Common exterior wall trim

   A. Corner--Usually 1 x 4 lumber or metal capping used to cover rough corners of a building

   B. Window--Usually 1 x 4 lumber nailed around a window unit to seal it to the siding

   C. Door--Usually 1 x 4 lumber nailed around a door unit to seal it to siding.

III. Types of cornices

   A. Open

   B. Box

IV. Parts of an open cornice

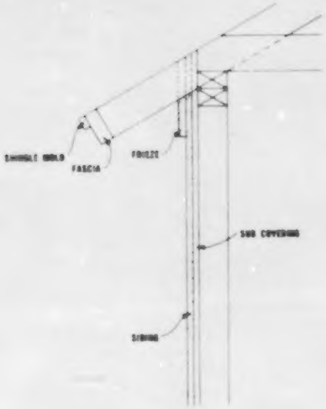
   A. Frieze

B. Fascia

C. Shingle mold

D. Siding

E. Sub-covering


SHINGLE MOLD
FASCIA
FRIEZE
SUB COVERING
SIDING

V. Parts of a box cornice

A. Soffit

B. Frieze

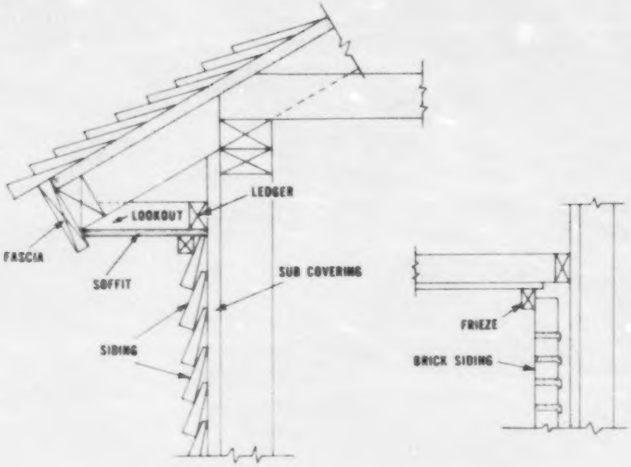
C. Lookout

D. Fascia

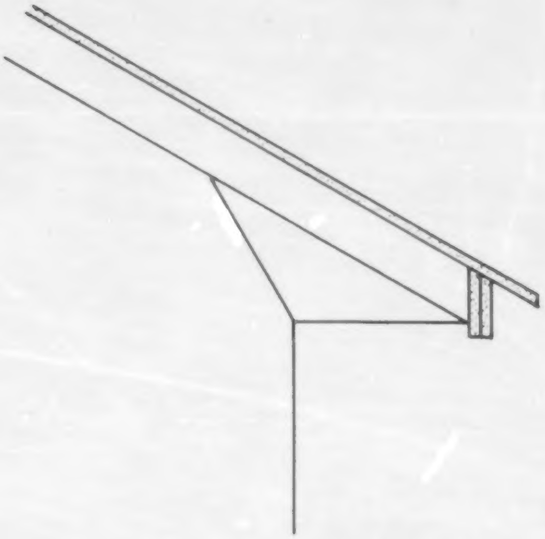
E. Brick siding

F. Sub-covering

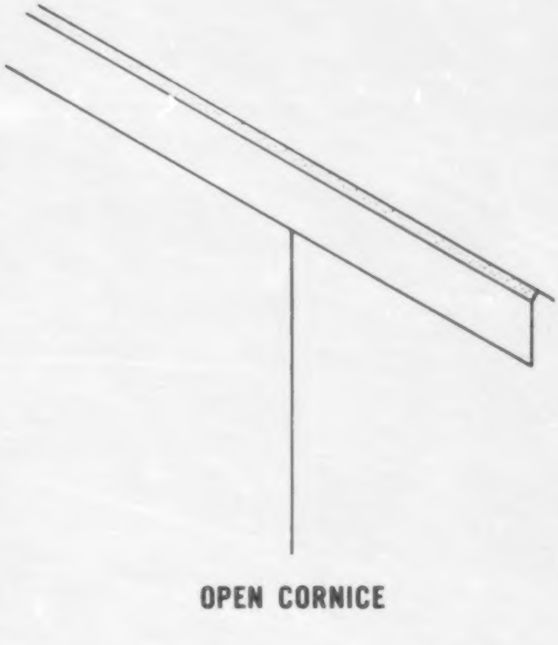
G. Ledger


LEDGER
LOOKOUT
FASCIA
SOFFIT
SUB COVERING
SIDING
FRIEZE
BRICK SIDING

TYPES OF CORNICES



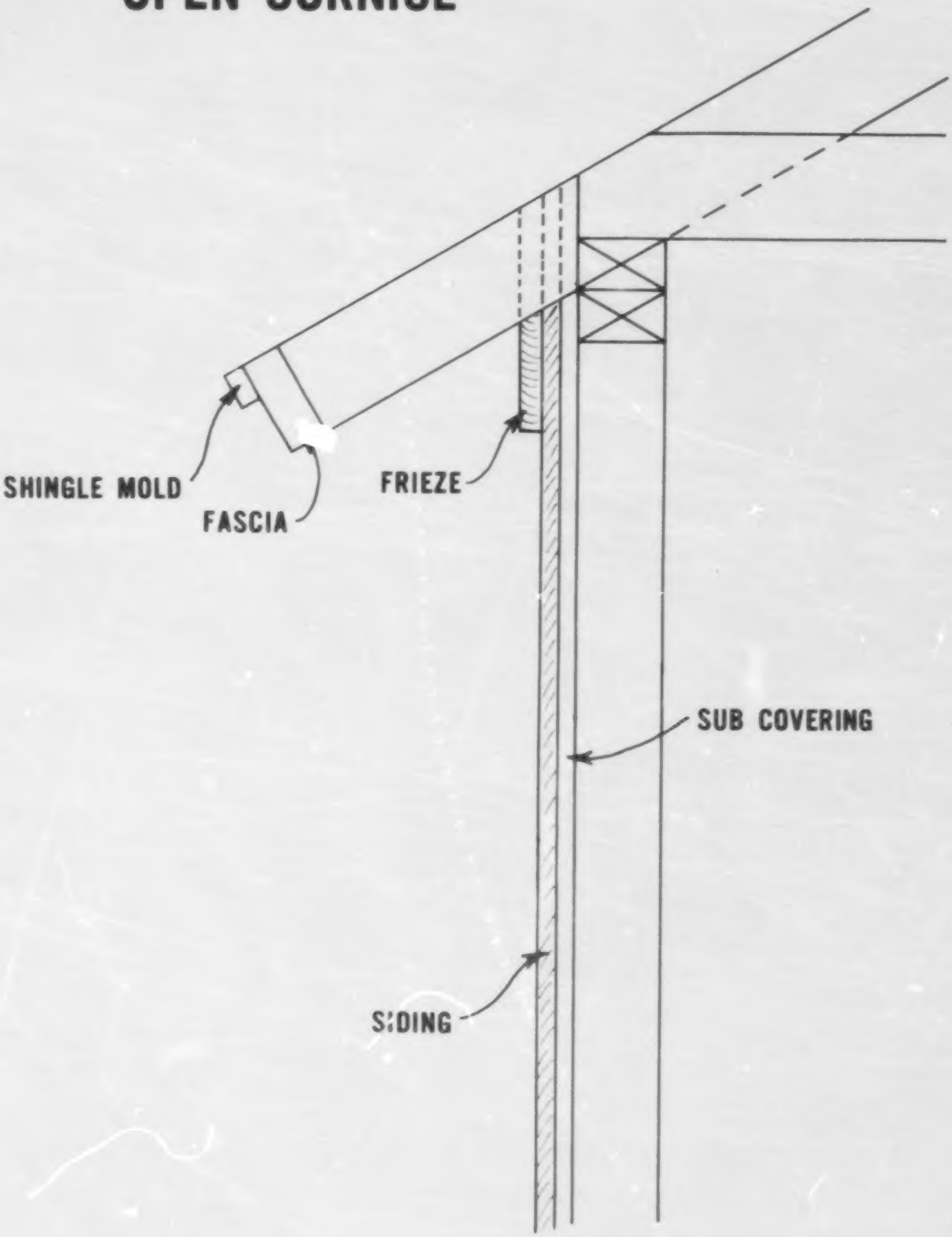
HORIZONTAL BOX CORNICE



OPEN CORNICE

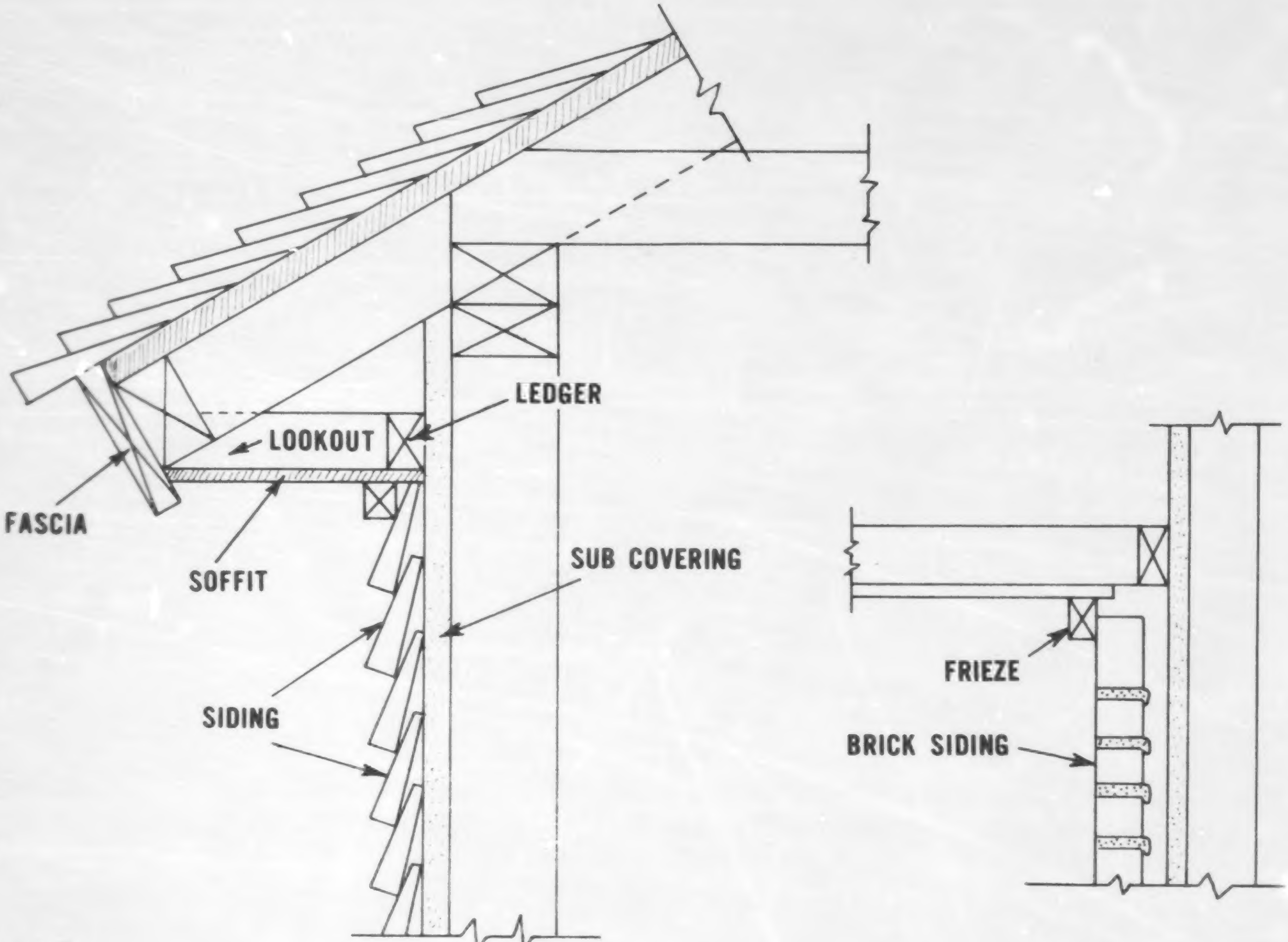
641

PARTS OF AN OPEN CORNICE


SHINGLE MOLD
FASCIA
FRIEZE
SUB COVERING
SIDING

642

PARTS OF A CLOSED CORNICE


LEDGER
LOOKOUT
FASCIA
SOFFIT
SUB COVERING
SIDING
FRIEZE
BRICK SIDING

UNIT VIII

EXTERIOR TRIM

JOB SHEET # 1--CONSTRUCT AN OPEN CORNICE ON A GABLE ROOF

I. Tools, equipment, and materials required:

A. Table or radial arm saw

B. Framing square

C. Steel tape

D. 13 oz. claw hammer

E. Handsaw or portable power saw

F. Sawhorses

G. Nails

H. 1 x 4's for fascia

I. 1 x 8's for frieze

J. Shingle mold

K. Pencil

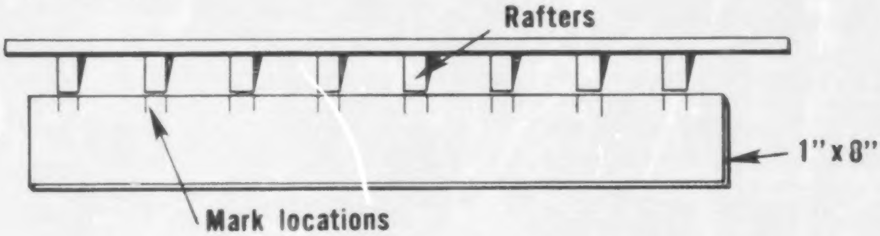
L. Try square

M. Caulking

II. Procedure:

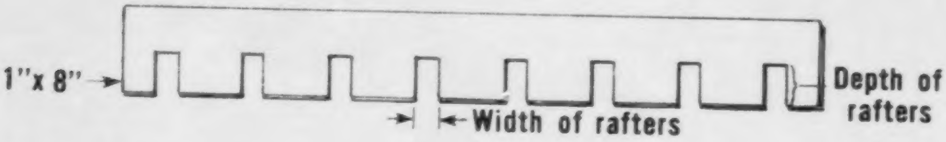
A. Cut 1 x 8's to fit length of wall.

B. Hold 1 x 8 under rafters and mark each rafter location.



C. Using the trysquare, mark the depth of each notch to be cut for the rafters.
(Note: Allow 1/16" on each mark for clearance.)

D. Cut the notches to the correct depth using the handsaw or power saw.
(Caution: Place the material in a secure place while sawing.)

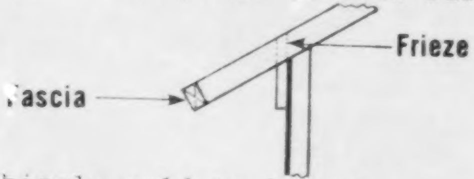

1"x 8"
Width of rafters
Depth of rafters

E. Nail the frieze in place.

F. Caulk around each rafter.

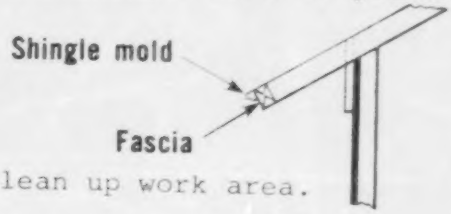
G. Measure and cut the 1 x 4 to length for the fascia.

H. Nail fascia in place to each rafter.


Frieze
Fascia

I. Cut shingle mold to length.

J. Nail shingle mold in place.


Shingle mold
Fascia

K. Clean up work area.

UNIT VIII

EXTERIOR TRIM

JOB SHEET #2--CONSTRUCT A BOX CORNICE ON A GABLE ROOF

I. Tools, equipment, and materials required:

   A. Table saw

   B. Framing square

   C. Steel tape

   D. 13 oz. claw hammer

   E. Handsaw or portable power saw

   F. Sawhorses

   G. Nails

   H. 1 x 8's for fascia

   I. 1 x 2's for frieze

   J. Shingle mold

   K. Pencil

   L. Trysquare

   M. Caulking

   N. Chalk line

   O. Level

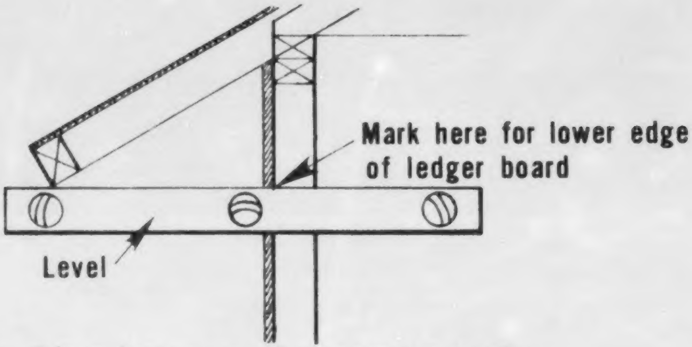
   P. 1 x 4's for ledger

   Q. 2 x 4's for lookouts

   R. Plywood for soffit

II. Procedure:

   A. Locate the lower edge of the ledger with the level at each corner of the roof.


Mark here for lower edge of ledger board
Level

B. Chalk a line between the corner marks.

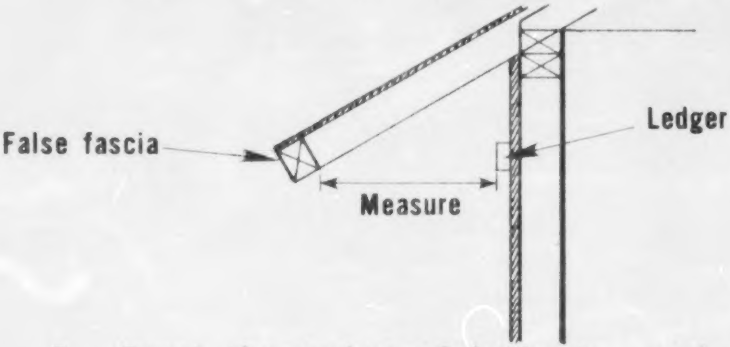
C. Nail the 1 x 4 ledger boards in place along the chalk line.

(NOTE: The bottom edge of the board should be on the line and nailed on each stud.)

D. Mark the ledger board on the same centers as the rafters.

(NOTE: All marks should be on the same side of the rafters.)

E. Measure the length from the inside edge of the false fascia to the edge of the ledger.


Ledger
False fascia
Measure

F. Count the number of lookouts required.

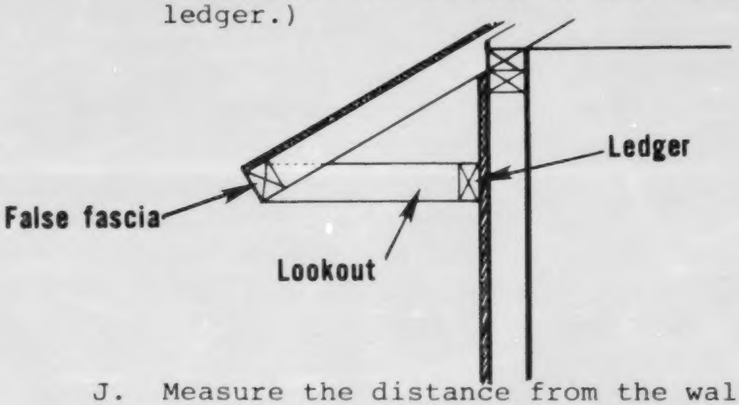
G. Cut 2 x 4's to the correct length for lookouts using the table saw.

H. Nail the outside ends of the lookouts to the sides of the rafters.

(NOTE: They should be on the same side as the lines on the ledger.)

I. Nail the inside ends to the ledger.

(NOTE: Make sure the bottom of the lookout is flush with the bottom of the false fascia and ledger.)



J. Measure the distance from the wall covering to the lower edge of the false fascia.

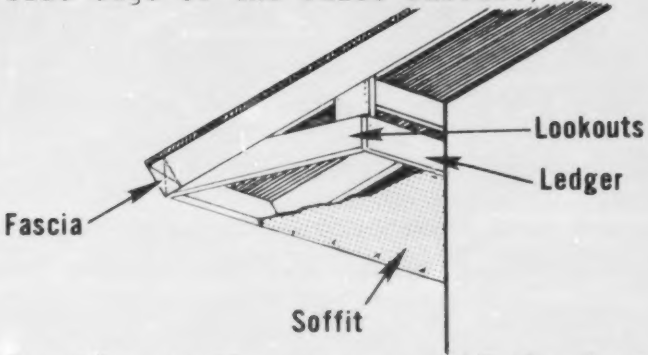
K. Cut the plywood to the correct width for the soffit.

L. Place marks on the false fascia and the wall covering on center of the lookouts.

(NOTE: This will help locate the lookouts when nailing the soffit.)

M. Nail the soffit in place.

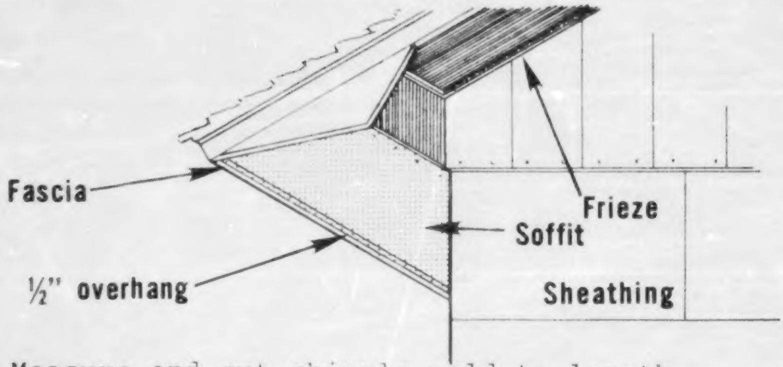
(NOTE: Be sure the soffit is flush with the outside edge of the false fascia.)



N. Starting at the corner, nail the fascia in place.

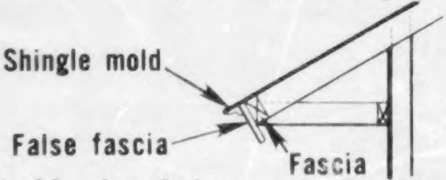
(NOTE: The corners should be mitered at the corners and the fascia should touch the bottom edge of the shingles.)

O. Place a 1 x 2 trim board along the bottom of the fascia if required.


Fascia
Frieze
Soffit
½" overhang
Sheathing

P. Measure and cut shingle mold to length.

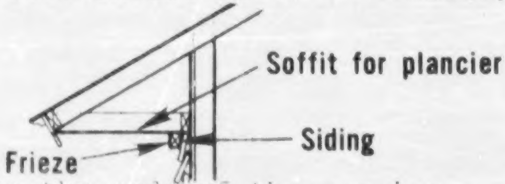
Q. Nail the shingle mold in place.


Shingle mold
False fascia
Fascia

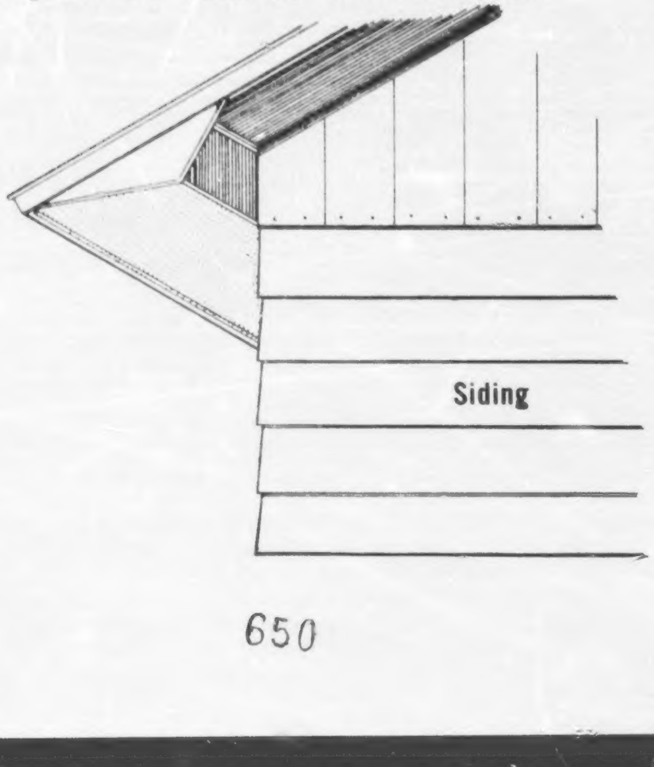
R. Install the frieze after the siding is in place.

S. Nail the frieze in the corner formed by the soffit and siding.

(NOTE: All splices should be on a lookout.)


Soffit for plancier
Siding
Frieze

T. Finish boxing in the ends of the cornices.



UNIT VIII

EXTERIOR TRIM

UNIT TEST

1. Match the terms associated with exterior trim to the correct definition by placing the number of each term on the right in the correct blank.

_____ a. The trim around the ends of the rafters including fascia, shingle mold, soffit, and frieze or brick mold

_____ b. The horizontal member of a cornice that is attached to the rafter tails

_____ c. A small piece of trim at the top of the fascia, usually 3/4 x 1½, used to keep moisture off the fascia

_____ d. The bottom member of a cornice made of plywood which covers the rafters

_____ e. The cornice member which seals between the rafters and ceiling joists and covers the top edge of the siding

_____ f. The member of a closed cornice to which the soffit is nailed

_____ g. The member of a cornice that attaches the lookout to the wall

1. Lookout
2. Soffit
3. Frieze mold
4. Ledger
5. Cornice
6. Fascia
7. Shingle mold

2. Identify the three common types of exterior wall trim by underlining the correct answer for each of the following statements.

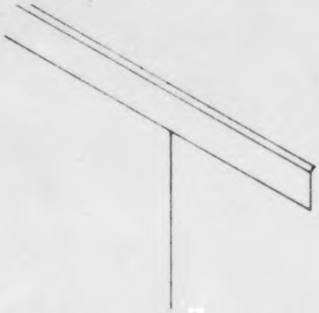
    a. Trim used to cover rough corners of a building is usually made of 1 x 4 lumber and (2 x 12 lumber, metal capping.)

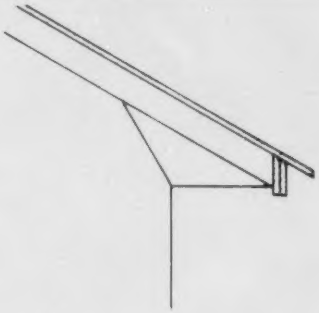
b. Window trim is usually made of (1 x 4, 2 x 6) lumber.

c. Door trim is usually made of (metal capping, 1 x 4 lumber.)

3. Identify the two types of cornices used in construction by writing the correct name of each drawing below.

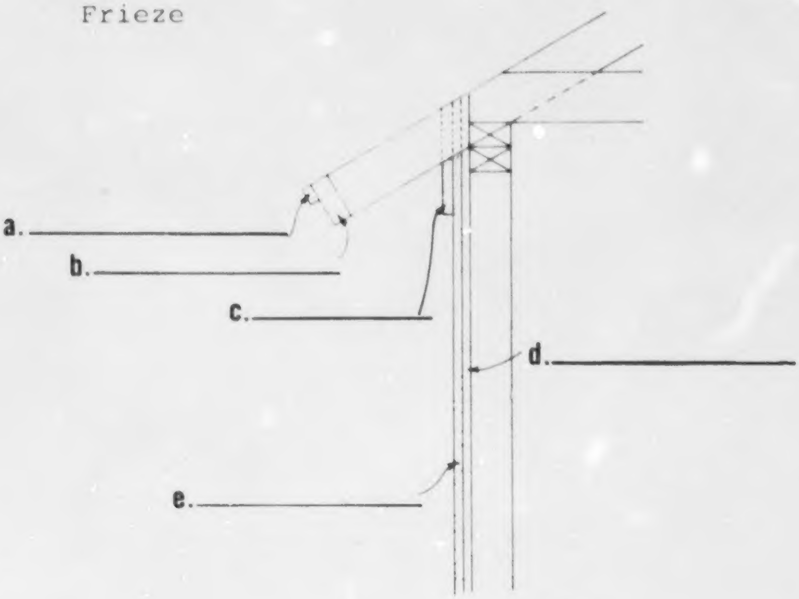
a. ____________________ b. ____________________





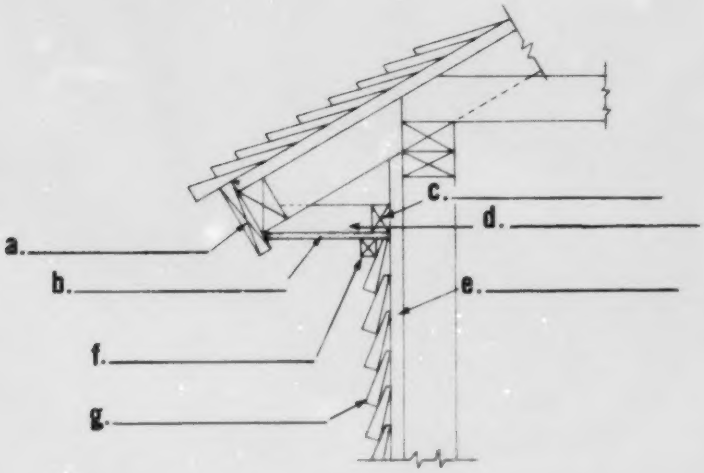
4. Identify the parts of an open cornice by writing each name listed below in the correct blank.

Sub covering	Siding
Fascia	Shingle mold
Frieze	



5. Identify each of the parts of a box cornice by writing each of the names listed below in the correct blank.

Soffit	Frieze
Fascia	Siding
Ledger	Sub-covering
Lookout	



6. Demonstrate the ability to:

   a. Construct an open cornice on a gable roof.

   b. Construct a closed cornice on a gable roof.

   (NOTE: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT VIII

EXTERIOR TRIM

ANSWERS TO UNIT TEST

1. a. 5
   b. 6
   c. 7
   d. 2
   e. 3
   f. 1
   g. 4
2. a. metal capping
   b. 1 x 4
   c. 1 x 4
3. a. open cornice
   b. box cornice
4. a. Shingle mold
   b. Fascia
   c. Frieze
   d. Sub-covering
   e. Siding
5. a. Fascia
   b. Soffit
   c. Ledger
   d. Lookout
   e. Sub-covering

    f. Frieze
    g. Siding

6. Evaluated to the satisfaction of the instructor.

UNIT IX

HARDWARE

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify and point out the use of each piece of hardware used in construction. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student will be able to:

1. Match the terms associated with hardware to the correct definition
2. Identify the types of hinges used in construction
3. Identify the three common cabinet door catches
4. Identify the types of locks used in construction
5. Identify the types of pulls used in construction
6. Identify the miscellaneous hardware used in construction
7. Demonstrate the ability to point out the location of hardware used in construction

UNIT IX

HARDWARE

SUGGESTED ACTIVITIES

I. Instructor:

- A. Discuss unit objective
- B. Provide students with information and assignment sheets
- C. Prepare transparencies and lesson plans
- D. Discuss information and assignment sheets
- E. Show students examples of various hardware used in construction
- F. Visit a job site where hardware is being installed
- G. Have students complete assignment sheet
- H. Give test
- I. Review problem areas pointed out by the test

II. Student:

- A. Discuss any questions of unit objective
- B. Read and discuss information and assignment sheets
- C. Complete assignment sheet
- D. Discuss the uses of hardware in construction
- E. Take test
- F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit

- A. Objectives
- B. Information sheet

C. Transparency masters

1. TM-1--Hinges
2. TM-2--Cabinet Door Catches
3. TM-3--Locks
4. TM-4--Pulls and Miscellaneous Hardware

D. Assignment sheet--Properly Locate Hardware

E. Test

F. Answers to test

II. References

A. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Goodheart-Willcox Co., Inc. 1976.

B. Durbahn, Walter E. Fundamentals of Carpentry Chicago, Illinois: American Technical Society. Fourth edition, Volume 1.

UNIT IX

HARDWARE

INFORMATION SHEET

I. Terms and definitions

  A. Mortised--When a part is recessed or sunk into a piece of wood

  B. Baseboard--The trim board around the bottom edge of a wall

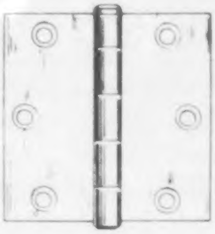
  C. Spring loaded--Where pressure is applied to a device by a spring

  D. Hinge--A jointed device which allows a door to swing

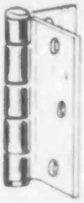
  E. Pull--A device used to open drawers and doors

II. Hinges

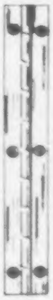
  A. Butt--Used to hang doors where both leaves of the hinges are mortised into the wood



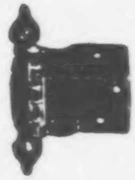
  B. Half-surface butt--Used to hang solid doors where only half of the hinge leaves are mortised into the door



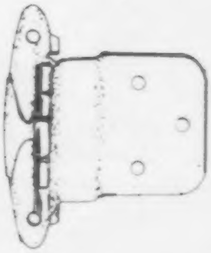
  C. Piano or continuous--Used on thin materials that are likely to warp



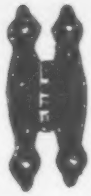
D. Inset--Used to hang cabinet doors



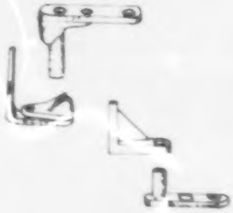
E. Spring loaded inset--Used on cabinet doors without a latch to hold the door open or closed



F. "H"--Used on cabinet doors where the entire hinge is exposed for a rustic look

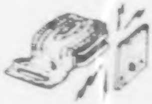


G. Pivot--Used on cafe type doors or any swinging door

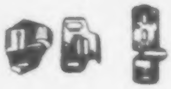


III. Cabinet door catches

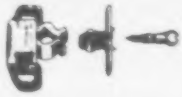
A. Magnetic--Holds door closed with a magnet and metal plate



B. Roller--Holds door closed with a spring loaded roller on a striker plate

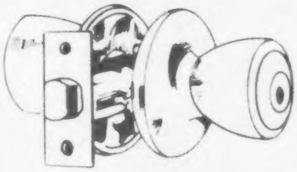


C. Friction--Holds door closed with a friction catch against another plate

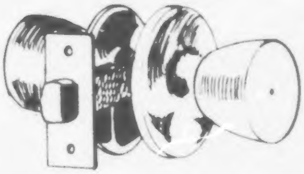


IV. Locks

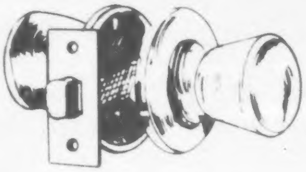
A. Entrance--A keyed lock used on outside doors



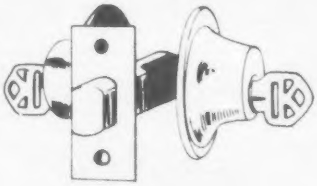
B. Privacy--Used on bedroom and bathroom doors where it can be opened with an emergency key



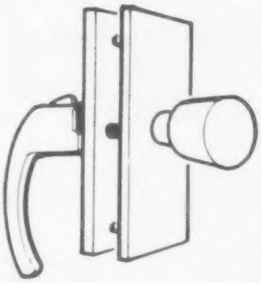
C. Passage--Used on closets or hall doors where no locks are necessary



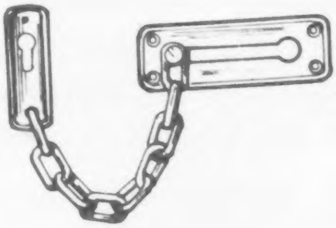
D. Deadbolt--Used on exterior doors as a high security device where a bolt with a square head is controlled by a key



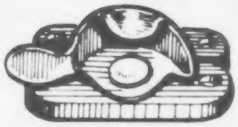
E. Storm door--Used on storm or screen doors



F. Chain door fastener--Used as a safety lock which allows the door to be opened about 4 1/2 inches and still be protected from intruders

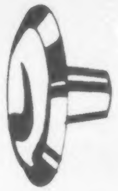


G. Sash--Used on wood or aluminum windows

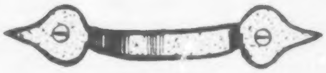


V. Pulls

A. Knob--Used on drawers or doors of cabinets and uses one screw

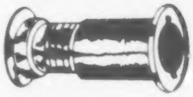


B. Handle--Used on drawers or doors of cabinets and uses two screws

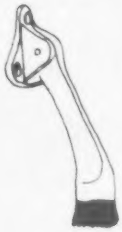


VI. Miscellaneous

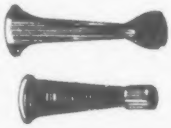
A. Door viewer--Installed in exterior doors to allow a person to look outside without opening the door



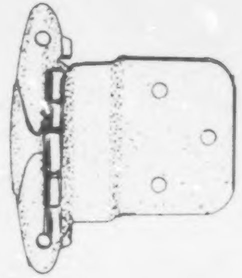
B. Door holder--Attached to the bottom part of a door to hold the door open at any location

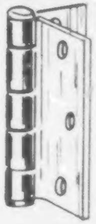


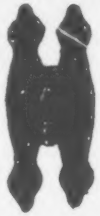
C. Door stop--Mounted on the baseboard behind a door to keep the door handle from damaging the wall when opened

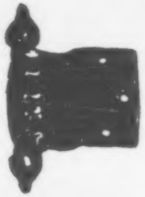


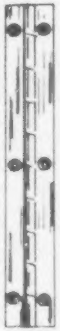
HINGES

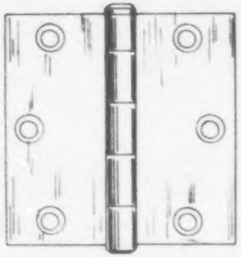

SPRING LOADED INSET HINGE

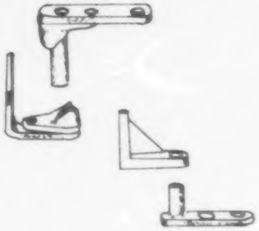

HALF SURFACE BUTT


"H" HINGE

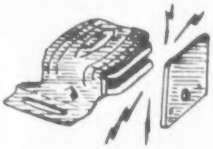

INSET HINGE


PIANO OR CONTINUOUS

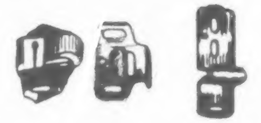

BUTT


PIVOT HINGE

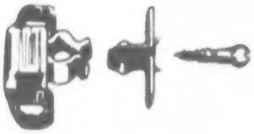
CABINET DOOR CATCHES



MAGNETIC CATCH

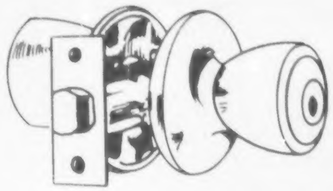


ROLLER CATCH

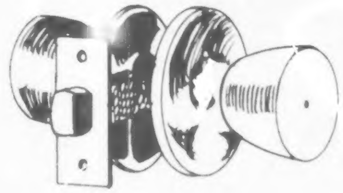


FRICTION CATCH

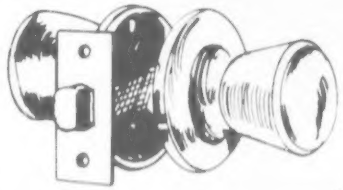
LOCKS



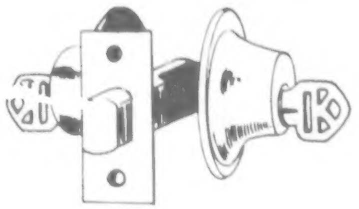
ENTRANCE



PRIVACY



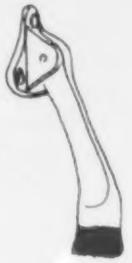
PASSAGE



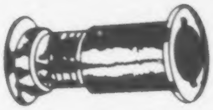
DEADBOLT

PULLS AND MISCELLANEOUS HARDWARE

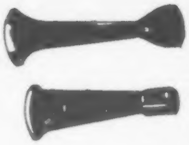
Miscellaneous



DOOR HOLDER

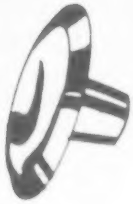


DOOR VIEWER

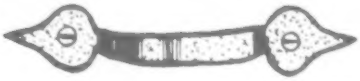


DOOR STOP

Pulls



KNOB



HANDLE

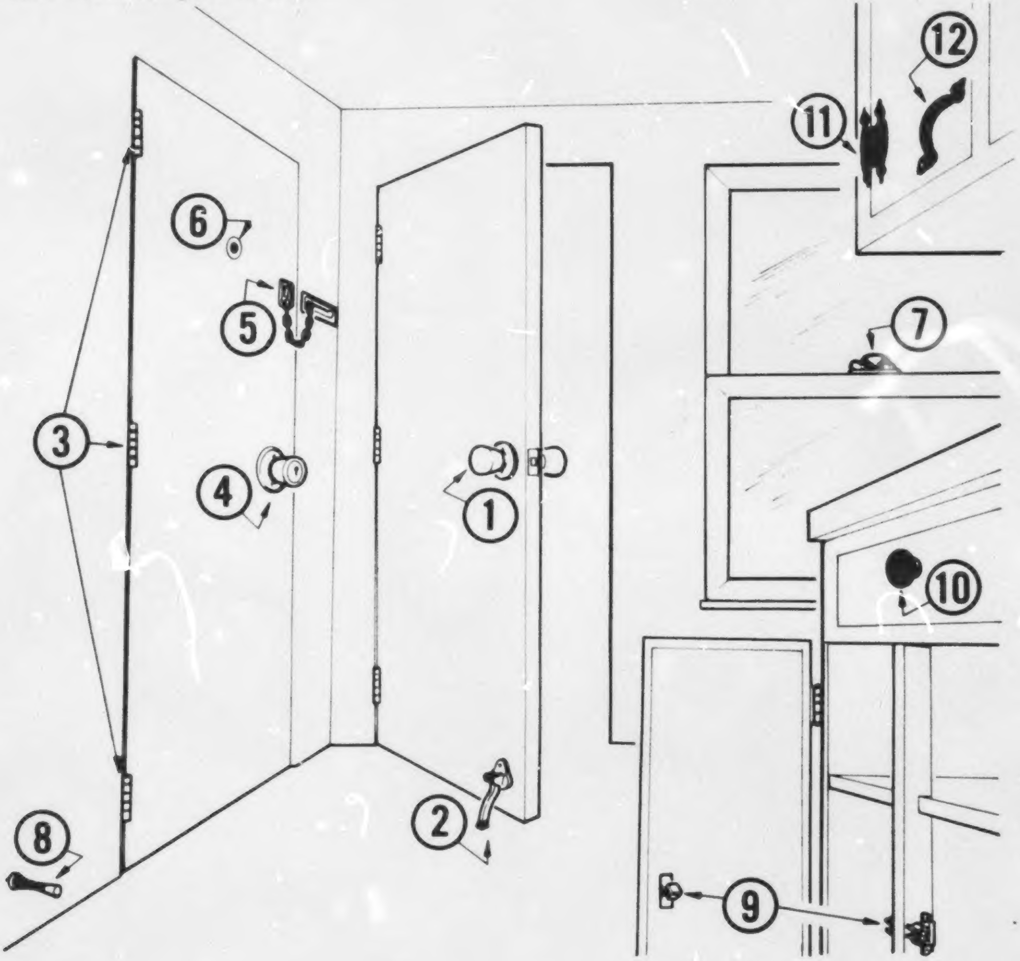
667

UNIT IX

HARDWARE

ASSIGNMENT SHEET--PROPERLY LOCATE HARDWARE

Directions: From the drawing below, point out the location of each piece of hardware by writing the name of each in the blank provided.



1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________
11. ____________________
12. ____________________

UNIT IX

HARDWARE

ANSWERS TO ASSIGNMENT SHEET

1. Passage door lock
2. Door holder
3. Butt hinges
4. Deadbolt or entrance lock
5. Chain door fastener
6. Door viewer
7. Sash lock
8. Door stop
9. Friction door catch
10. Cabinet door knobs or pulls
11. H hinges
12. Cabinet handles or pulls

UNIT IX

HARDWARE

UNIT TEST

1. Match the terms associated with hardware to the correct definition. Place each of the numbers on the right in the correct blank.

_____ a. When a part is recessed or sunk into a piece of wood

_____ b. The trim board around the bottom edge of a wall

_____ c. Where pressure is applied to a device by a spring

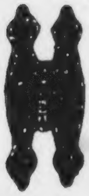
_____ d. A jointed device which allows a door to swing

_____ e. A device used to open drawers and doors

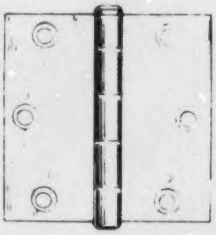
1. Spring loaded
2. Hinge
3. Mortised
4. Pull
5. Baseboard

2. Identify the types of hinges used in construction. Write the correct name from the list in each blank below.

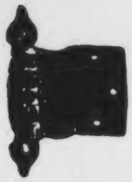
Pivot
Butt
H
Piano
Half-surface butt
Spring loaded inset
Inset
Offset

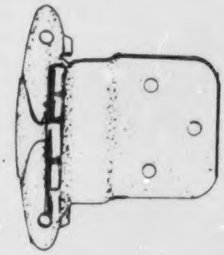


a. ______________________________

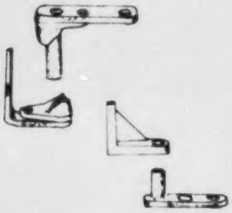


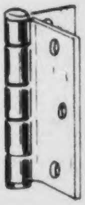
b. ______________________________



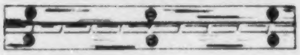


c. ______________________ d. ______________________





e. ______________________ f. ______________________

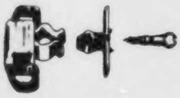


g. ______________________

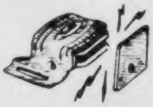
3. Identify the three common cabinet door catches used in construction. Write the correct name from the list in each blank below.

Magnetic
Roller

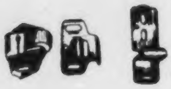
Friction
Snapper



a. ______________________



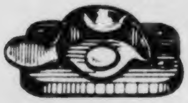
b. ______________________



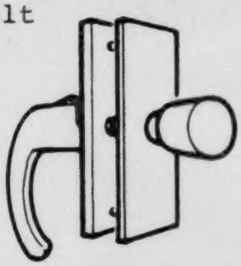
c. ______________________

4. Identify the types of locks used in construction. Write the correct name from the list in each blank below.

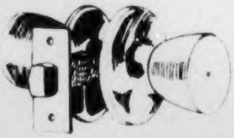
Passage	Privacy
Entrance	Chain door fastener
Sash	Deadbolt
Storm door	



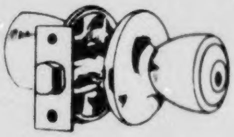
a. ______________________



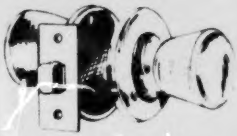
b. ______________________



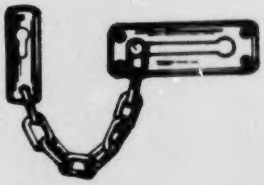
c. ______________________



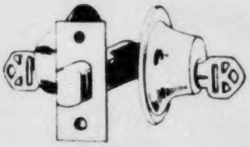
d. ______________________



e. ______________________



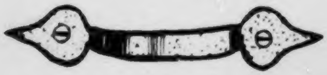
f. ______________________



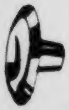
g. ______________________

5. Identify the types of pulls used in construction. Write the name of each in the correct blank.

Knob	Handle	Gripper



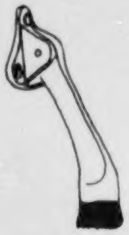
a. ______________________

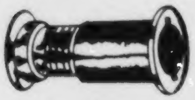


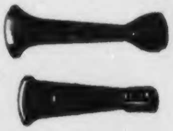
b. ______________________

6. Identify the miscellaneous hardware used in construction. Write the correct name from the list below in each blank below.

Door viewer Door holder Door stop







a. ____________________ b. ____________________ c. ____________________

7. Demonstrate the ability to point out the location of hardware used in construction.

(Note: If this activity has not been accomplished prior to the test, ask your instructor when it should be completed.)

UNIT IX

HARDWARE

ANSWERS TO UNIT TEST

1. a. 3
   b. 5
   c. 1
   d. 2
   e. 4

2. a. H
   b. Butt
   c. Inset
   d. Spring loaded inset
   e. Pivot
   f. Half-surface butt
   g. Piano

3. a. Friction
   b. Magnetic
   c. Roller

4. a. Sash
   b. Storm door
   c. Passage
   d. Entrance
   e. Privacy
   f. Chain door fastener
   g. Deadbolt

5. a. Handle
   b. Knob

6. a. Door holder
   b. Door viewer
   c. Door stop

7. Evaluated to the satisfaction of the instructor.

UNIT X

DOORS AND WINDOW UNITS

UNIT OBJECTIVE

After completion of this unit, the student will be able to identify and install door and window units used in construction. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit of instruction, the student will be able to:

1. Match the terms associated with doors and windows
2. Identify each of the types of doors used in construction
3. Identify the types of doors used in houses according to use and construction
4. Identify the parts of a window unit
5. Identify the types of windows used in construction
6. Point out the types of glass used in window construction
7. Demonstrate the ability to:
    a. Hang a door unit
    b. Hang a window unit

UNIT X

DOORS AND WINDOW UNITS

SUGGESTED ACTIVITIES

I. Instructor:

- A. Discuss unit objectives
- B. Provide students with information and assignment sheets
- C. Prepare transparencies and lesson plan
- D. Discuss information and job sheets
- E. Show students various types of door and window units being installed on the job site
- F. Give test
- G. Review problem areas identified by the test

II. Student:

- A. Discuss questions of unit objectives
- B. Read and discuss information and job sheets
- C. Complete job sheets
- D. Discuss types of windows and methods of installation
- E. Take test
- F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objectives
- B. Information sheets
- C. Transparency masters
    - 1. TM-1--Parts of a Door Unit

    2. TM-2--Parts of a Window Unit

D. Job sheets

    1. Job Sheet #1--Hang a Door Unit

    2. Job Sheet #2--Hang a Window Unit

E. Test

F. Answers to test

II. References

A. Huntington, Whitney C. Building Construction. New York, New York: John Whitley and Sons, Inc. Second edition.

B. Sweet's Catalogue File. New York, New York: McGraw-Hill Book Company.

UNIT X

DOORS AND WINDOW UNITS

INFORMATION SHEET--SECTION 1

I. Terms and definitions

A. Particle board--A 4 x 8 sheet of material made from wood chips and a special glue.

B. Stile--The upright pieces of a door frame.

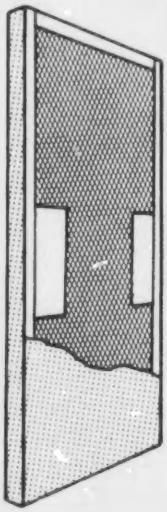
C. Casing--The trimming around a door or window.

D. Core--The inner part of a door.

E. Sash--The framework which holds the glass in a window.

II. Door construction

A. Hollow Core



1. Core is made of corrugated material arranged in diamond shaped cells.

2. Edgestrips are made of softwoods.

3. Lock blocks are located so that a lock may be placed on either side.

4. Faces are prefinished or unfinished.

B. Solid core

1. Particle board core

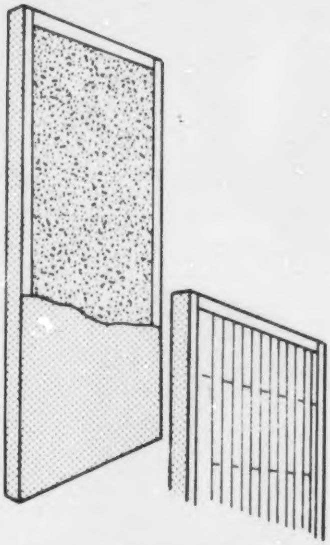
   a. Edgestrips match the faces.

   b. Faces are finished or unfinished.

2. Wood stave core

   a. Core is made from softwood blocks or strips.

   b. Core materials are glued together.



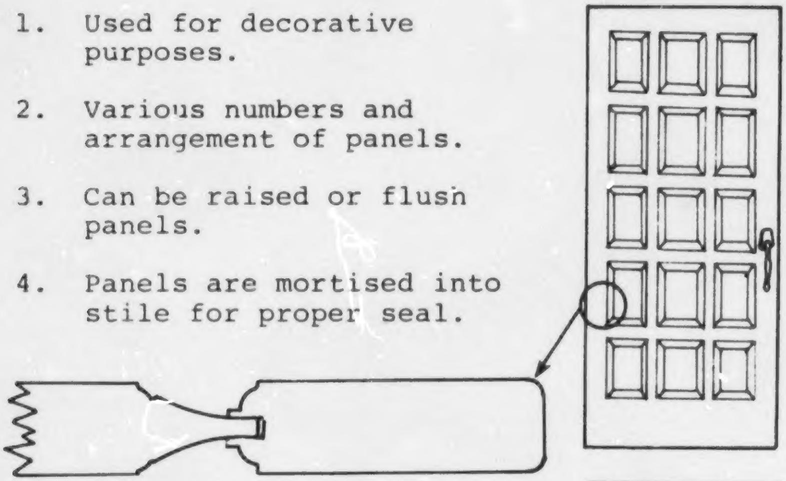
C. Panel

1. Used for decorative purposes.

2. Various numbers and arrangement of panels.

3. Can be raised or flush panels.

4. Panels are mortised into stile for proper seal.



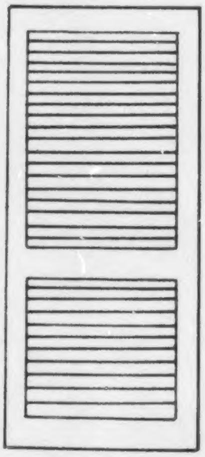
D. Louvered

1. Used in closets and pantries

2. Various widths of 12" to 42".

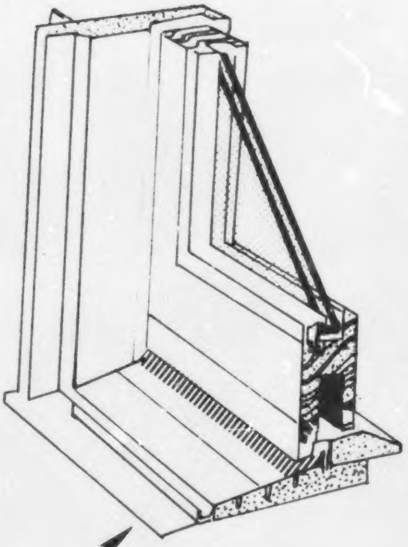
3. Louvers are mortised into edge strips.

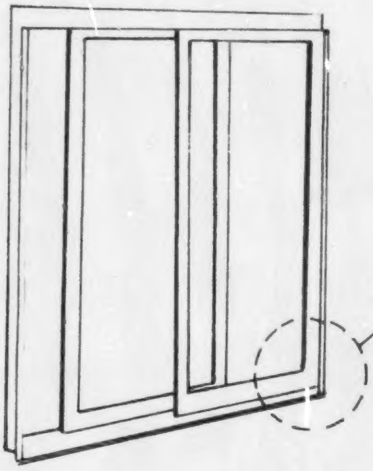
4. Available in full or half-louvered design.



E. Sliding glass

1. Metal framed or casing
2. Available with one or two glass thicknesses
3. Various sized





III. Types of doors

A. Exterior

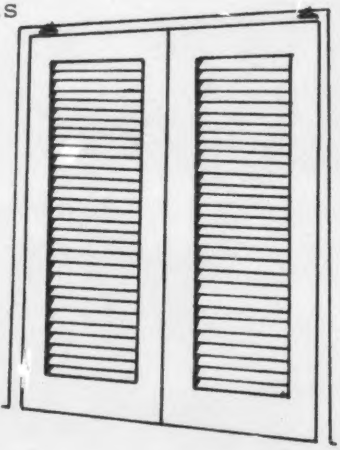
1. Solid core
2. Hollow core
3. Decorative panel
4. Patio or sliding glass

B. Interior

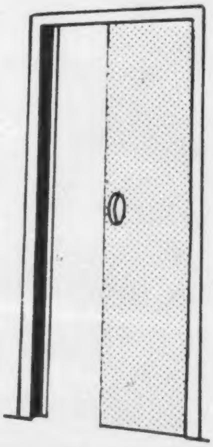
1. Hollow core
2. Panel
3. Folding

a. Wood or plastic
b. Many lengths and widths
c. Used in service areas or closets

4. Bifold
   a. Louvered, half-louvered, or panel
   b. Used in closets or area where a very small amount of space is available for opening and closing
   c. Hangs on tracks and rollers
5. Cafe
   a. Many lengths and widths
   b. Used for partial concealment of a kitchen or other room
   c. Hung on pivot hinges



6. Pocket
   a. Used to conserve space
   b. Slides into the wall
   c. Used in dressing rooms



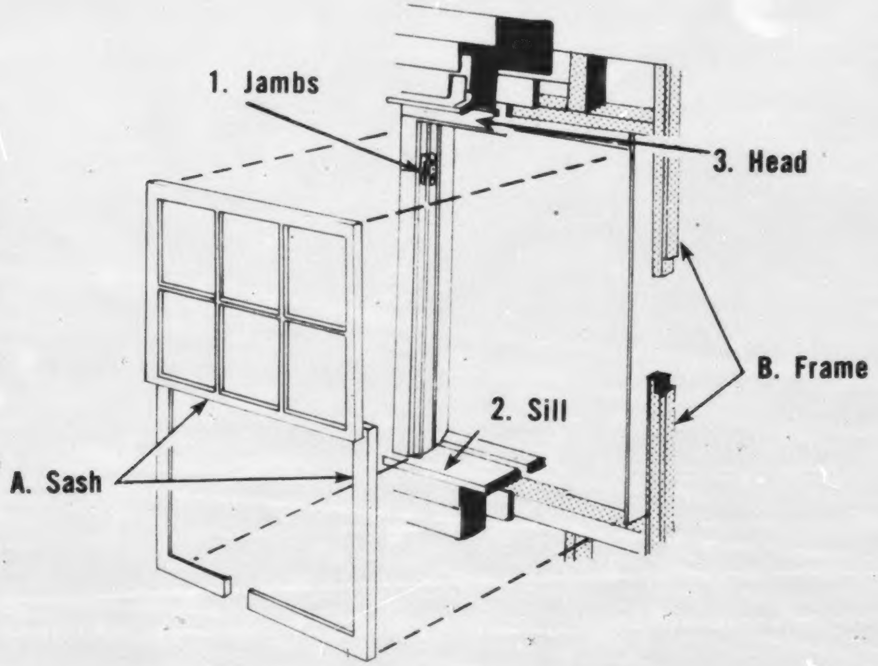
UNIT X

DOORS AND WINDOW UNITS

INFORMATION SHEET--SECTION 2

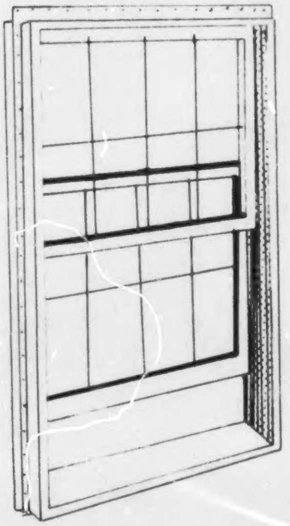
IV. Window unit construction

- A. Sash--Portion of window that supports the glass
- B. Frame or casing--The outer part of the window which is fixed to the wall
    - 1. Jambs--The two side members of the frame
    - 2. Sill--The bottom member of the frame
    - 3. Head--The top member of the frame

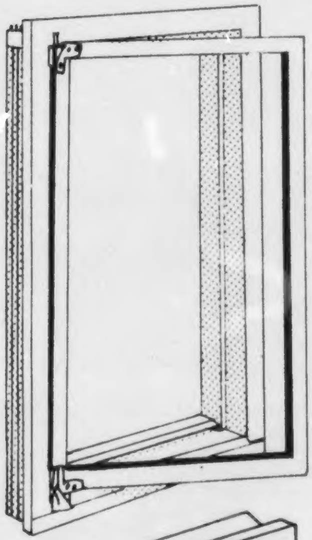


V. Types of windows

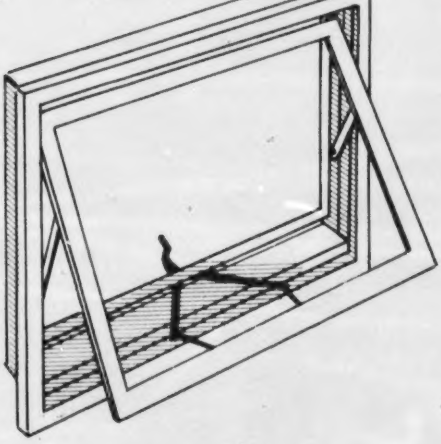
A. Double hung--A window unit consisting of two sashes that slide vertically past each other



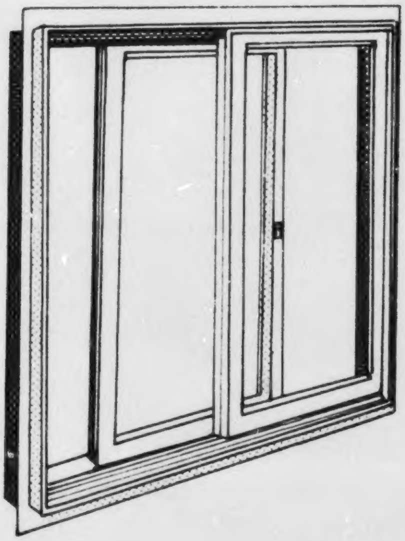
B. Casement--A window unit that has the sash swung on one side



C. Awning--A window unit hinged on the top

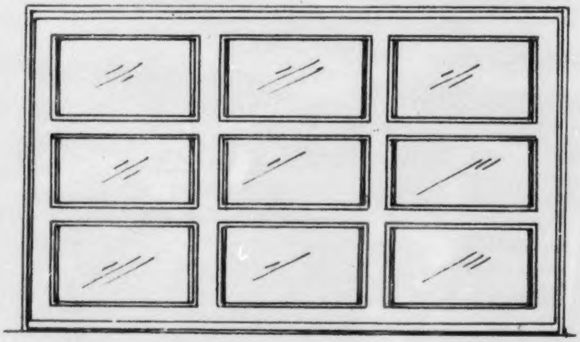


D. Sliding--A window unit consisting of two or more sashes, one fixed and one sliding horizontally



E. Fixed glass or picture window--A window unit that is fixed in place with no moving parts and is used mainly in commercial buildings

(Note: Construction can be either wood or aluminum.)



VI. Types of glass used in windows

A. SSB

1. Single strength

2. About 1/32 inch thick

B. DSB
   1. Double strength
   2. About 1/16 inch thick

C. Crystal sheet
   1. Very durable
   2. About 7/32 inch thick

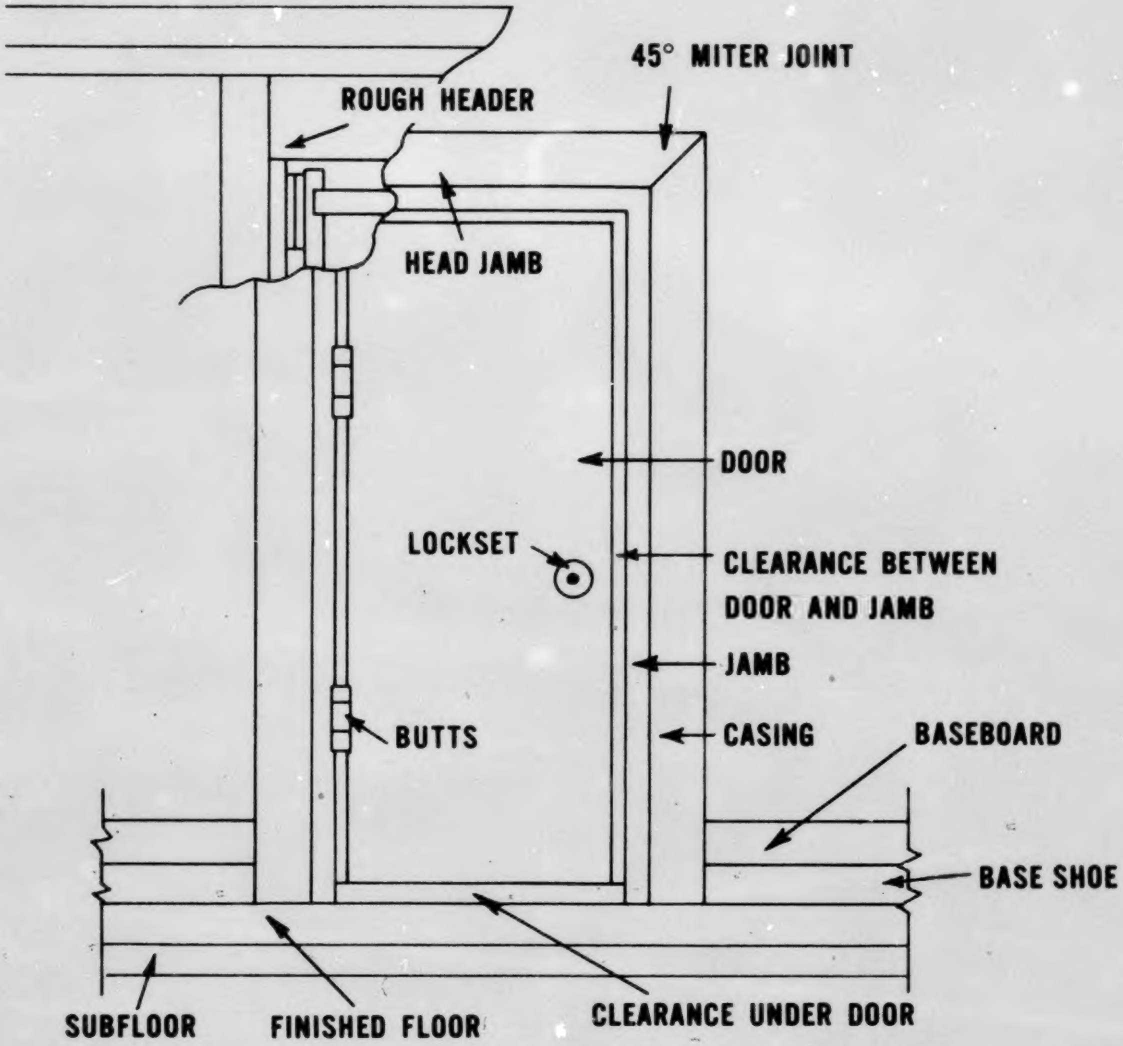
D. Plate
   1. Large-sized sheets
   2. About 1/4 inch thick

E. Insulating
   1. Two or more sheets of glass
   2. Separated by air space

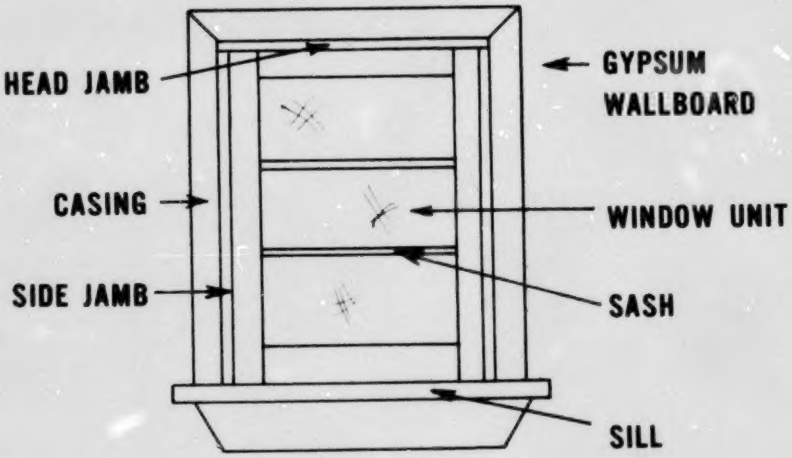
F. Tempered
   1. Shatterproof
   2. Hardened by special process

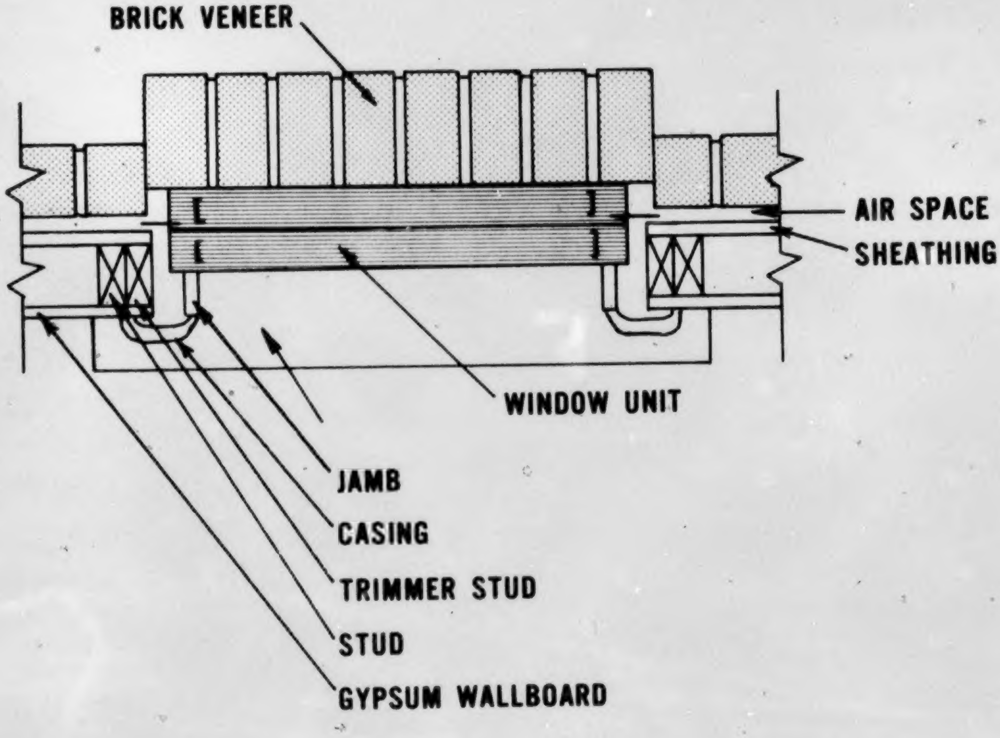
G. Plexiglass
   1. A plastic substitute for glass
   2. Shatterproof

PARTS OF A DOOR UNIT


45° MITER JOINT
ROUGH HEADER
HEAD JAMB
DOOR
LOCKSET
CLEARANCE BETWEEN DOOR AND JAMB
JAMB
BUTTS
CASING
BASEBOARD
BASE SHOE
SUBFLOOR
FINISHED FLOOR
CLEARANCE UNDER DOOR

PARTS OF A WINDOW UNIT


HEAD JAMB
GYPSUM WALLBOARD
CASING
WINDOW UNIT
SIDE JAMB
SASH
SILL


BRICK VENEER
AIR SPACE
SHEATHING
WINDOW UNIT
JAMB
CASING
TRIMMER STUD
STUD
GYPSUM WALLBOARD

UNIT X

DOORS AND WINDOW UNITS

JOB SHEET #1--HANG A DOOR UNIT

I. Tools, equipment, and materials required

   A. Complete door unit

   B. Nails

   C. Level

   D. Framing square

   E. Hand drill

   F. 13 oz. hammer

   G. Wood chisel

   H. Screwdriver

II. Procedure

   A. Trim any wallboard or sub-covering that extends into the rough opening for the door.

   B. Check the rough opening and the door unit size.

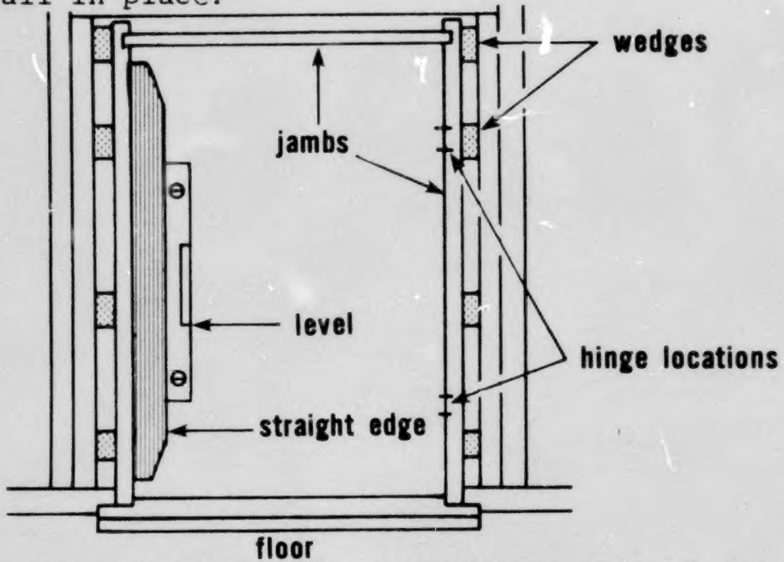
   (Note: There should be some space between the door jambs and the rough opening studs.)

   C. Determine the direction the door should open.

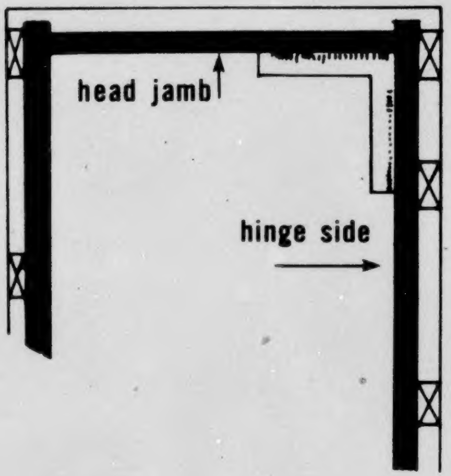
   D. Install the door jamb unit in the rough opening.

   (Note: Use shim blocks or double shingle blocking where required.)

E. Plumb the hinge side on the door with a level and nail in place.


wedges
jambs
level
hinge locations
straight edge
floor

F. Square the head jamb to the hinge wide of the door and tack in place.


head jamb
hinge side

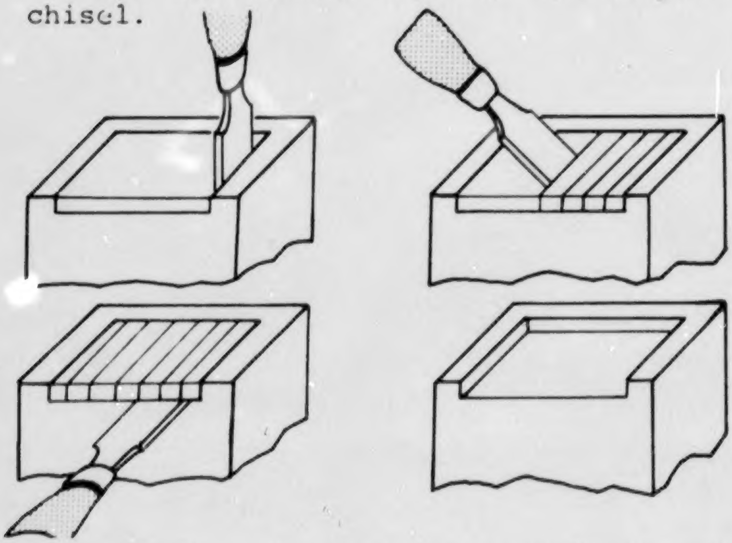
G. Plumb the other door jamb and nail in place.

H. Mark the locations for the hinges on the door edge and side of jamb if necessary.

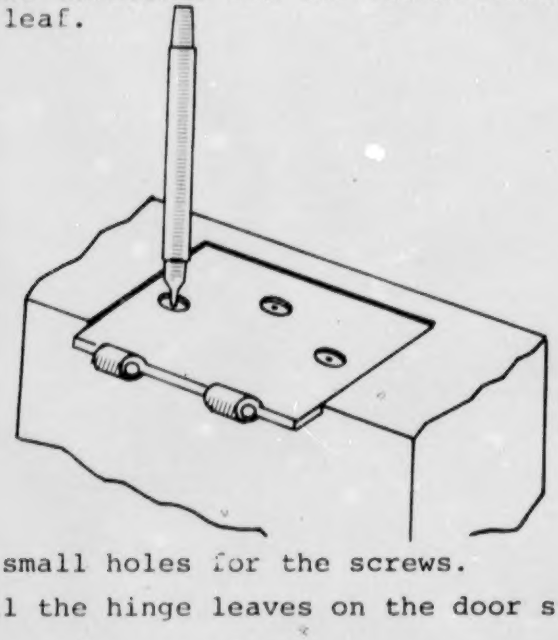
(Note: Measurements should be made on the door first and transferred to the side jamb.)

(Caution: Allow 1/16 inch clearance between the top jamb and the top of the door to prevent sticking.)

I. Cut out the mitered area for the hinges with the chisel.



J. Mark the locations for the screws through the hinge leaf.



K. Drill small holes for the screws.

L. Install the hinge leaves on the door sides and jambs.

M. Hang the door in place.

(Note: There should be proper clearance around the door.)

N. Install the lock set if necessary.

O. Install door stops if necessary.

P. Clean work area.

UNIT X

DOORS AND WINDOW UNITS

JOB SHEET #2--HANG A WINDOW UNIT

I. Tools, equipment, and materials required

A. Complete aluminum window unit

B. Nails

C. Level

D. Framing square

E. 13 oz. hammer

F. Wood chisel

II. Procedure

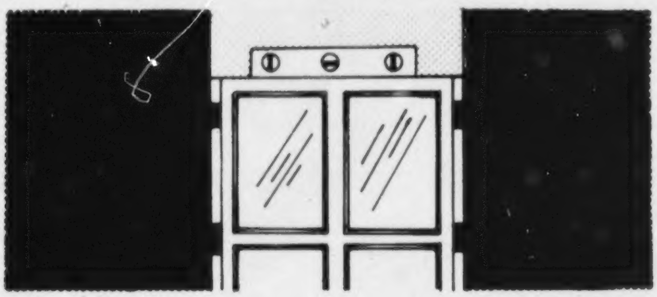
A. Trim any wallboard or sub-covering that extends into the rough opening for the door.

B. Check the rough opening and the window unit size.

(Note: There should be some space between the window frame and the rough opening studs.)

C. Install the window frame in the rough opening on top of the sub-covering.

D. Level the window in the opening.



E. Shim around the window frame to secure it in place.

F. Nail the frame in place.

G. Clean work area.

UNIT X

DOORS AND WINDOW UNITS

UNIT TEST--SECTION 1

1. Match the terms associated with doors and windows to the correct definition by placing each number on the right in the correct blank on the left.

____a. A 4 x 8 sheet of material made from wood chips and a special glue

____b. The upright pieces of a door frame.

____c. The trimming around a door or window

____d. The inner part of a door

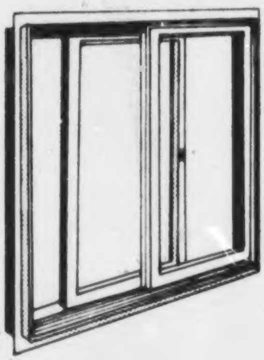
____e. The framework which holds the glass in a window

1. Core
2. Particle board
3. Casing
4. Sash
5. Stile

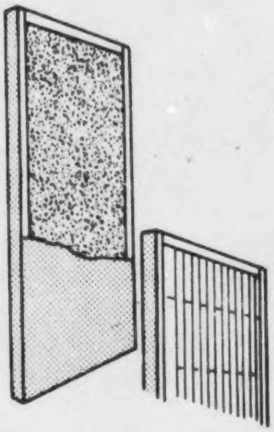
2. Identify each of the types of doors used in construction by writing the correct name of each from the list below in the blank by each picture.

Panel
Louvered
Hollow core

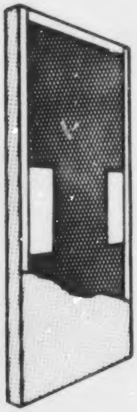
Sliding glass
Solid core



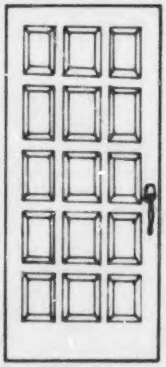
a. ____________________



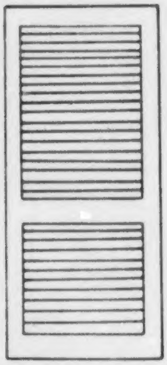
b. ____________________



c. ______________________



d. ______________________



e. ______________________

3. Identify the types of doors used in houses according to use and construction. Circle the correct answer for each statement below.

   a. The type of door used to conserve space which slides into the wall is the (cafe, pocket).

   b. The louvered (bifold, cafe) door hangs on tracks and rollers.

   c. The (cafe, interior) door is used on closets.

   d. A patio or sliding glass door is an (interior, exterior) door.

   e. Often in a kitchen, a (cafe, pocket) door is used for partial concealment.

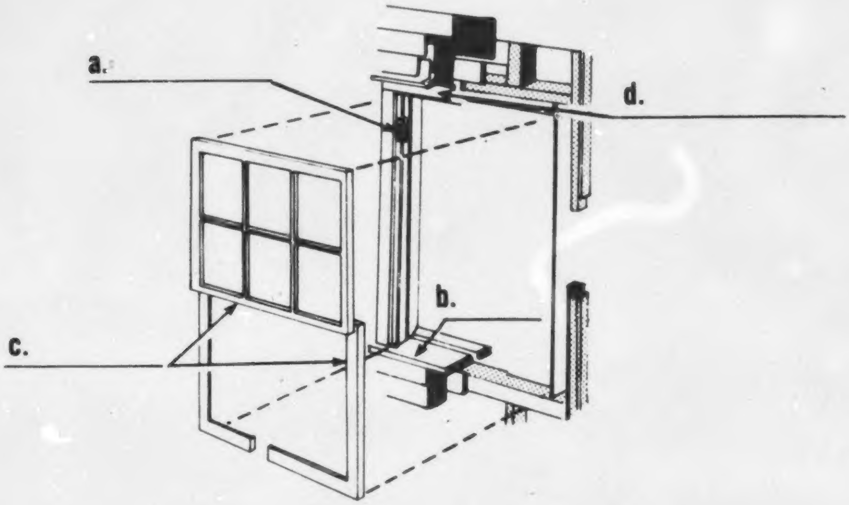
UNIT X

DOORS AND WINDOW UNITS

UNIT TEST--SECTION-2

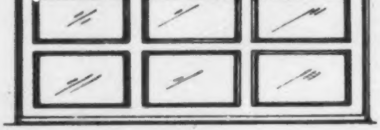
4. Identify the parts of a window unit by writing the correct name of each in the blanks provided.

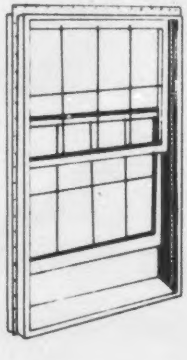
Head jamb	Jambs
Sash	Sill



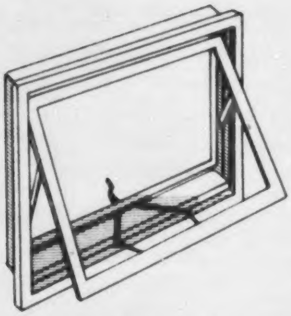
5. Identify the types of windows used in construction by writing the name of each in the blanks provided below.

Awning	Picture
Double hung	Sliding
Casement	

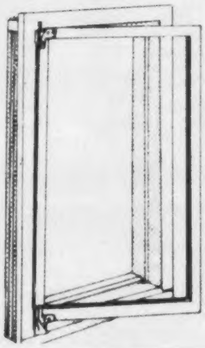




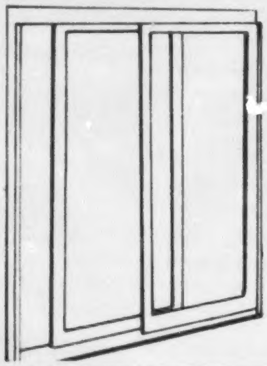
a. ______________________ b. ______________________



c. ______________________



d. ______________________



e. ______________________

6. Point out the types of glass used in window construction by writing one of the names listed below by each description.

SSB
RSP
DSB
Plate
Crystal
Plexiglass
Tempered
Insulating

a. ______________________--single strength glass about 1/32 inch thick

b. ______________________--double strength glass about 1/16 inch thick

c. ______________________--two or more sheets of glass separated by air space

d. ______________________--a shatterproof plastic substitute for glass

e. ______________________--large sized sheets about 1/4 inch thick

f. ______________________--glass hardened by a special process to make it shatterproof

g. ______________________--a very durable glass about 7 3/4 inches thick

7. Demonstrate the ability to:
   - a. Hang a door unit.
   - b. Hang a window unit.

UNIT X

DOORS AND WINDOW UNITS

ANSWERS TO UNIT TEST
SECTION-1

1. a. 2
   b. 5
   c. 3
   d. 1
   e. 4

2. a. Sliding glass
   b. Solid core
   c. Hollow core
   d. Panel
   e. Louvered

3. a. pocket
   b. bifold
   c. interior
   d. exterior
   e. cafe

4. a. Jambs
   b. Sill
   c. Sash
   d. Head jamb

5. a. Picture
   b. Double hung
   c. Awning
   d. Casement
   e. Sliding

6. a. SSB
   b. DSB
   c. Insulating
   d. Plexiglass
   e. Plate
   f. Tempered
   g. Crystal

7. Evaluated to the satisfaction of the instructor.

UNIT XI

CEILING TILE AND WALL PANELING

UNIT OBJECTIVE

After completing this unit, the student will be able to select and install the different types of ceiling tile and wall paneling used in construction. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVES

After completion of this unit of instruction, the student will be able to:

1. Match the terms associated with tile and paneling application to the correct definition
2. Identify the patterns of tile used on ceilings
3. Point out the types of paneling and methods of installation
4. Demonstrate the ability to:
    - a. Install ceiling tile
    - b. Install wall paneling

UNIT XI

CEILING TILE AND WALL PANELING

SUGGESTED ACTIVITIES

I. Instructor
   - A. Discuss unit objectives
   - B. Provide students with information and job sheets
   - C. Prepare transparencies and lesson plan
   - D. Discuss information and job sheets
   - E. Show students various types of ceiling tile and wall paneling
   - F. Give test
   - G. Review problem areas identified by the test

II. Student
   - A. Discuss questions of unit objectives
   - B. Read and discuss information and job sheets
   - C. Complete job sheets
   - D. Discuss types of tile and paneling used in construction
   - E. Take test
   - F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit
   - A. Objectives
   - B. Information sheets
   - C. Transparency masters
     - 1. TM-1--Methods of Installing Ceiling Tile
     - 2. TM-2--Methods of Installing Wall Paneling

D. Job Sheets

  1. Job Sheet #1--Install Ceiling Tile

  2. Job Sheet #2--Install Wall Paneling

E. Test

F. Answers to test

II. References

A. Books

1. Smith, Ronald D. Materials of Construction. New York, New York: McGraw-Hill Book Company. Second edition.

2. Sweet's Catalogue File. New York, New York: McGraw-Hill Book Company.

3. Wagner, Willis H. Modern Carpentry. South Holland, Illinois: The Goodheart-Wilcos Co., Inc. 1976.

UNIT XI

CEILING TILE AND WALL PANELING

INFORMATION SHEET--SECTION 1

I. Terms and definitions

   A. V grooved--A decoration on paneling where a V-shaped cut is made the length of a sheet

   B. Acoustical--A rough surface on ceiling tile or other materials that absorb noise

   C. Striated--A lined pattern marked on or cut into material

   D. Toxic--A poisonous substance

   E. Lath--Thin strips of wood nailed to the ceiling joists to provide a nailing surface for ceiling tile

   F. Adhesive--A type of glue used for hanging tile or paneling

   G. Prefinished--A lacquer or varnish coating applied at the factory

   H. Furring--Strips of wood nailed on a surface to provide a nailing surface for another material or covering

II. Ceiling tile

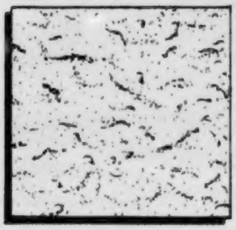
   A. Sizes

      1. 12" x 12"

      2. 24" x 48"

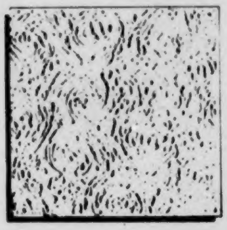
   B. Patterns

      1. Hole punched--Holes are punched to form a rough design.



2. Plain--Panels have plain solid surface

3. Decorative--Designs are stamped on each panels' surface



C. Methods of application

1. Glued or nailed to a solid surface
2. Nailed to lathe
3. Suspended by metal framework

UNIT XI

CEILING TILE AND WALL PANELING

INFORMATION SHEET--SECTION 2

III. Plywood paneling

  A. Sizes

    1. Standard sheets are 4 x 8 feet.

    2. Thickness varies from 3/16 to 3/4 inch.

  B. Styles

    1. Natural or unfinished

      a. Grooved

      b. Plain

    2. Prefinished

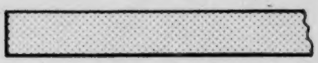
      a. Grooved

      b. Striated

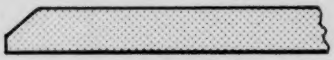
      c. Decorative design

  C. Edge shapes

    1. Square

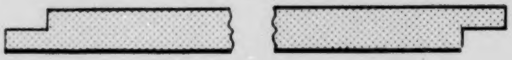


    2. V groove



    (Note: Most commonly used in interior paneling.)

    3. Lap



  D. Methods of application

    1. Fastening

      a. Nails

(Note: Colored nails may be purchased to match finished paneling.)

   b. Glue

      (Caution: Adhesives are toxic and should be used in a well ventilated area.)

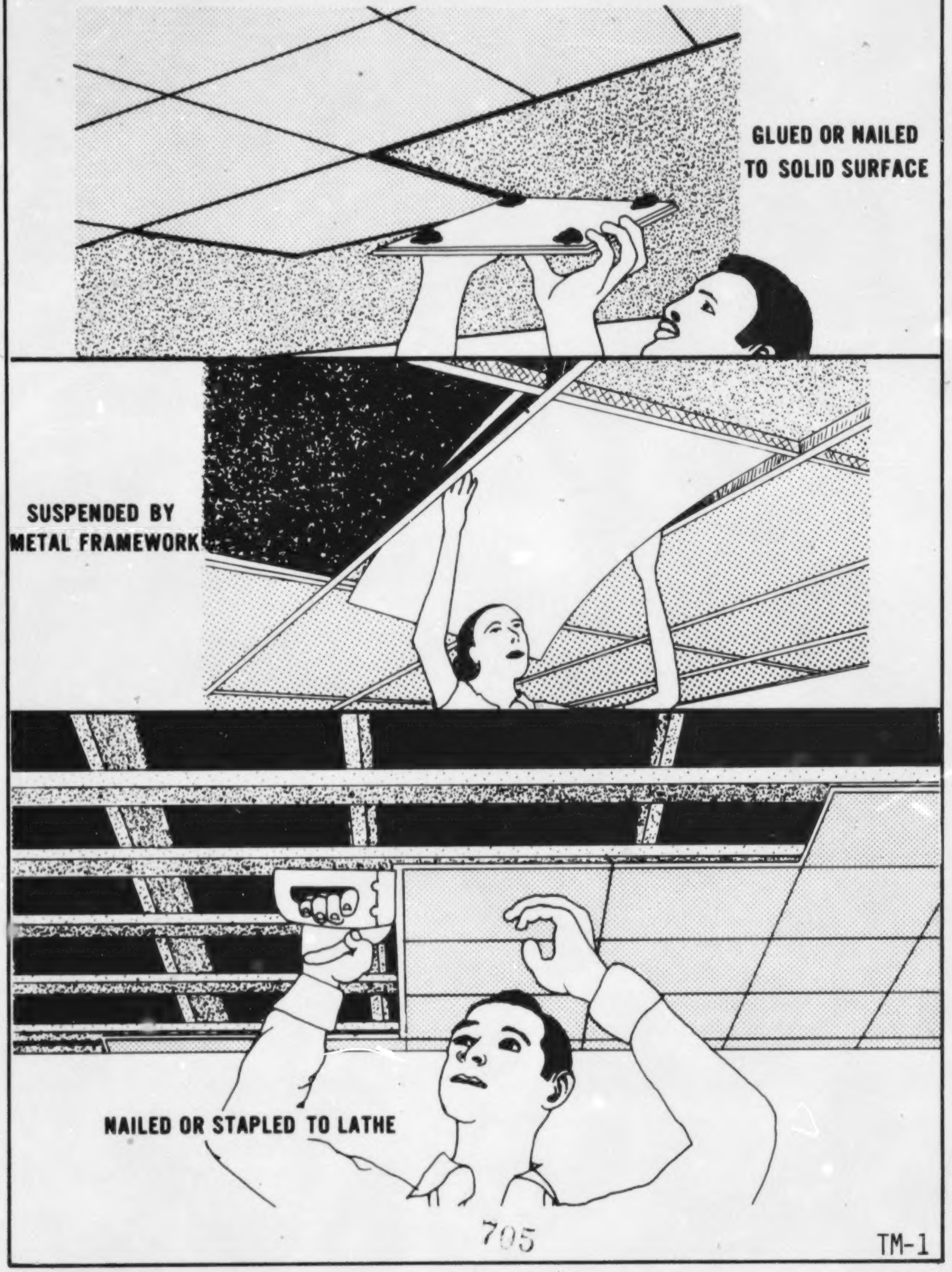
   c. Glue and nails combination

2. Jointing

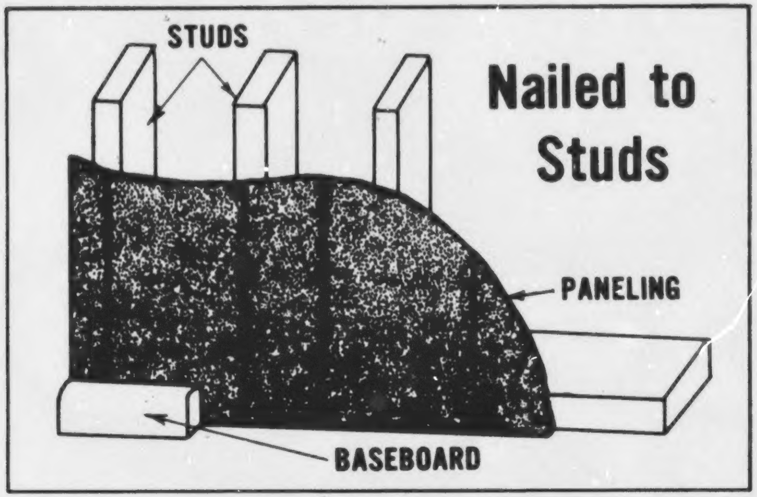
   a. Joint paneling uses a solid backing.

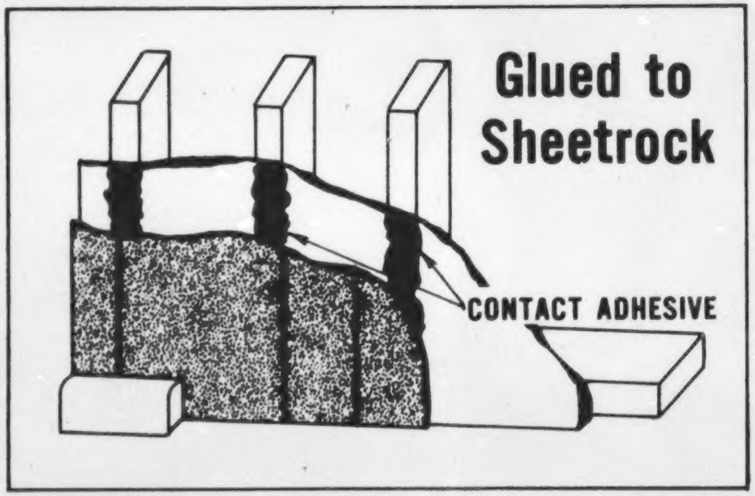
   b. If a wall has been paneled, do not joint paneling on the same studs as the sheetrock joints.

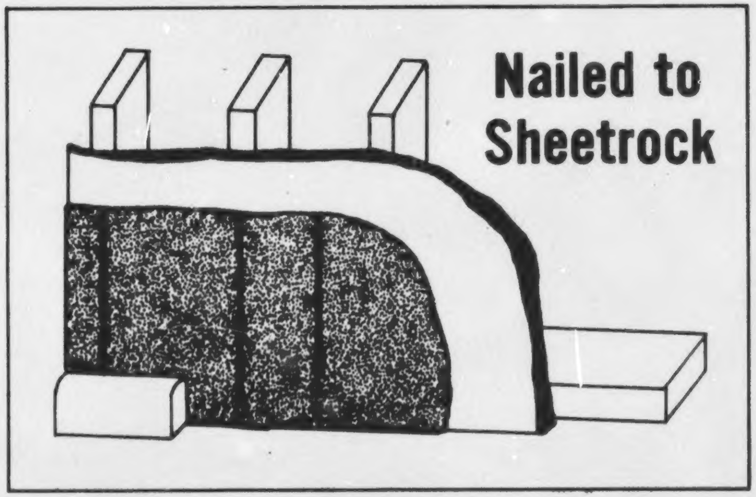
METHODS OF INSTALLING CEILING TILE


GLUED OR NAILED
TO SOLID SURFACE
SUSPENDED BY
METAL FRAMEWORK
NAILED OR STAPLED TO LATHE

METHODS OF INSTALLING WALL PANELING


STUDS
Nailed to Studs
PANELING
BASEBOARD


Glued to Sheetrock
CONTACT ADHESIVE


Nailed to Sheetrock

TM-2

XI-11

UNIT XI

CEILING TILE AND WALL PANELING

JOB SHEET #1--INSTALL CEILING TILE

I. Tools and materials required

   A. Tape measure

   B. Framing square

   C. Chalk line

   D. Pencil

   E. Knife

   F. Furring strips if required

   G. Stapler or adhesive

   H. Hammer

   I. 12 x 12 inch ceiling tile

   J. 1 x 3 furring strips if required

II. Procedure

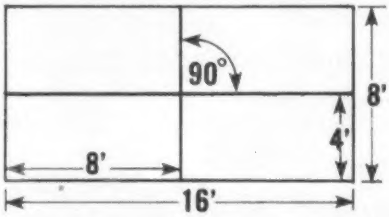
   A. Measure the two short walls of the room.

   B. Mark the midpoint of each wall.

   C. Chalk a line between the two marks.

   D. Locate the center of the chalk line.

   E. Chalk a line across the ceiling at a right angle and on center to the first line.



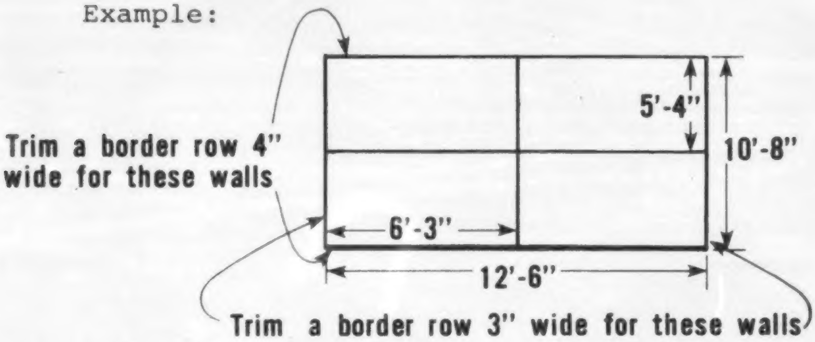
   F. Count the number of tile required from the centerline to the wall.

(Note: Each tile will cover 12 x 12 inches, so the number of feet will determine the number of tile.)

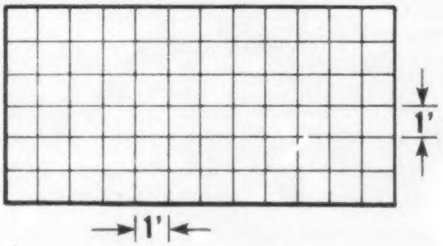
G. Trim tile for a border row if the distance from center of room to wall is not an exact number of feet.

(Note: This will produce an even appearance of the room with all border tile being the same size for opposite sides of the room.)

Example:


5'-4"
10'-8"
Trim a border row 4" wide for these walls
6'-3"
12'-6"
Trim a border row 3" wide for these walls

H. Chalk lines 1 foot apart and parallel to the center lines across the ceiling.



I. Nail 1 x 3 furring strips across the room in one direction and on center of the chalk lines.

(Note: The firring strips should be at right angles to the ceiling joists.)

J. Check furring strips for levelness with a string or straightedge.

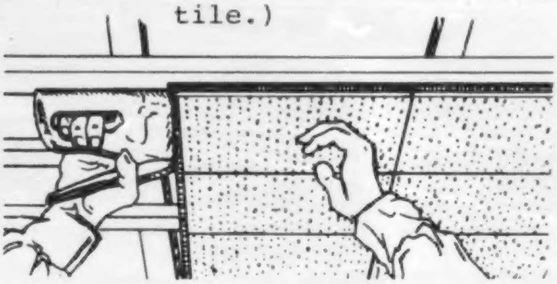
K. Chalk a line on the end of furrings strips to line up the border tile.

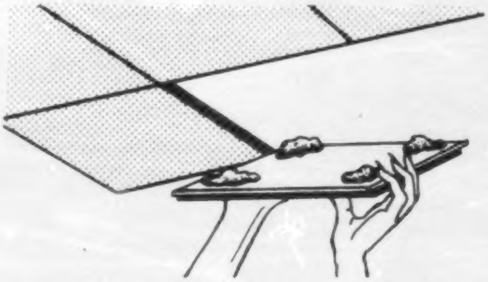
L. Start installing tile in a corner.

(Note: Remember to use the border tile and align them with the chalk line and center of furring strips if used.)

M. Staple the tile to the furring strips or glue the tile to the ceiling depending on method of installation used.

(Note: Use three staples along each flange of the tile.)





N. Staple or glue the rest of the full size tile.

O. Staple or glue the border tile along the remaining wall.

(Note: Nails should be close to the wall.)

P. Clean work area.

UNIT XI

CEILING TILE AND WALL PANELING

JOB SHEET #2--INSTALL WALL PANELING

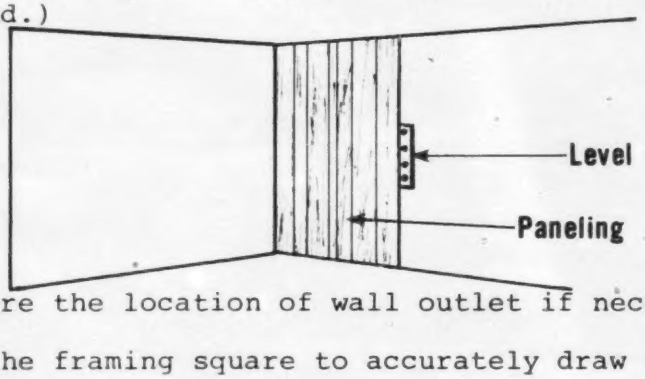
I. Tools and materials required

- A. Tape measure
- B. Framing square
- C. Pencil
- D. Paneling adhesive
- E. Hammer
- F. Paneling
- G. Paneling nails
- H. Saber saw
- I. Table saw
- J. Molding

II. Procedure

- A. Stand the paneling on end around the room with the grain patterns matching on adjoining paneling as best as possible.
- B. Plumb the edge of paneling away from an inside corner of the room and trim the edge to fit the corner.

  (Note: All paneling joints should be centered on a stud.)



- C. Measure the location of wall outlet if necessary.
- D. Use the framing square to accurately draw the

location of any wall outlet.

F. Apply paneling adhesive on the wall where the edges and middle of the paneling will be located.

G. Nail the paneling in place and plumb.

(Note: Nail each sheet on every stud.)

H. Align paneling with the edges of doors and windows when possible.

(Note: This will cause less scraps.)

I. Measure the location of any switches or wall outlets accurately.

(Note: Measure down from the ceiling and over from the paneling in place or a corner.)

J. Install the remaining paneling around the room.

(Note: Set each nail flush with the paneling surface.)

K. Panel inside the window openings.

L. Install molding on corners, baseboards, and ceilings.

M. Clean work area.

UNIT XI

CEILING TILE AND WALL PANELING

UNIT TEST--SECTION 1

1. Match the terms associated with tile and paneling application with the correct definition by writing the number of each term on the right in the correct blank on the left.

____a. A decoration on paneling where a V-shaped cut is made the length of a sheet.

____b. A poisonous substance

____c. Strips of wood nailed on a surface to provide a nailing surface for another material or covering

____d. A lacquer or varnish coating applied at the factory

____e. Thin strips of wood nailed to the ceiling joists to provide a nailing surface for ceiling tile

____f. A rough surface on ceiling tile or other material that absorbs noise

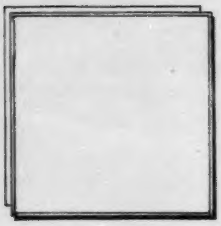
____g. A lined pattern marked on or cut into material

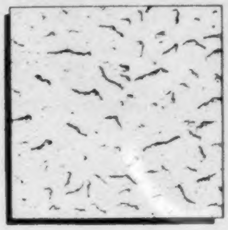
____h. A type of glue used for hanging tile or paneling

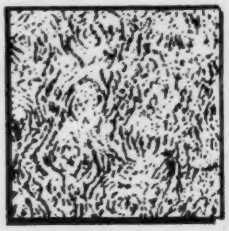
1. Toxic
2. Acoustical
3. V grooved
4. Furring
5. Lath
6. Adhesive
7. Prefinished
8. Striated

2. Identify the patterns of tile used on ceilings by writing the correct name of each in the correct blank below.

Hole punched   Plain   Decorative







a. ____________________ b. ________________ c. ________________

UNIT XI

CEILING TILE AND WALL PANELING

UNIT TEST--SECTION 2

3. Point out the types of paneling and installation methods by marking a "✓" over the number in front of each word or words that belongs with the statements below.

   a. Paneling comes in the following sizes:

      1. 4 x 8 foot sheets

      2. Thickness varies from 1/2 to 1 inch

      3. Thickness varies from 3/16 to 3/4 inch

   b. The two styles of paneling are:

      1. Finished on both sides

      2. Prefinished

      3. Natural

   c. Paneling edges are shaped as:

      1. Square

      2. Round

      3. V-groove

      4. Lap

   d. The methods of applying paneling are:

      1. Nails

      2. Thumbtacks

      3. Glue

      4. With no backing

      5. Jointed on same stud as the sheetrock

4. Demonstrate the ability to:

   a. Install ceiling tile.

UNIT XI

CEILING TILE AND WALL PANELING

ANSWERS TO UNIT TEST--SECTION-1

1. a. 3
   b. 1
   c. 4
   d. 7
   e. 5
   f. 2
   g. 8
   h. 6
2. a. Plain
   b. Hole punched
   c. Decorative
3. a. 1, 3
   b. 2, 3
   c. 1, 3, 4
   d. 1, 3
4. Evaluated to the satisfaction of the instructor

UNIT XII

INSULATION AND DRYWALL

UNIT OBJECTIVE

After completing this unit, the student will be able to install insulation and drywall. This knowledge will be evidenced through demonstration and by satisfactorily completing a unit test.

SPECIFIC OBJECTIVE

After completion of this unit, the student will be able to:

1. Match the terms associated with insulation and drywall to the correct definition
2. Identify the types of insulation used in construction
3. Identify the drywall tools used in construction
4. Point out the construction of sheetrock
5. Demonstrate the ability to:
    a. Install insulation
    b. Install sheetrock

UNIT XII

INSULATION AND DRYWALL

SUGGESTED ACTIVITIES

I. Instructor

   A. Discuss unit objectives

   B. Provide students with information and job sheets

   C. Prepare transparencies and lesson plan

   D. Discuss information and job sheets

   E. Show students different installation methods of insulation and drywall being used on job sites

   F. Give test

   G. Review problem areas identified by the test

II. Student

   A. Discuss questions of unit objectives

   B. Read and discuss information and job sheets

   C. Complete job sheets

   D. Discuss the methods of installing insulation and drywall observed on job sites

   E. Take test

   F. Discuss test questions missed

INSTRUCTIONAL MATERIALS

I. Included in this unit

   A. Objectives

   B. Information sheets

   C. Transparency masters

      1. TM-1--Sheetrock Shape

      2. TM-2--Horizontal Sheetrock Application

3. TM-3--Vertical Sheetrock Application

D. Job sheets

1. Job Sheet #1--Install Insulation

2. Job Sheet #2--Install Sheetrock

E. Test

F. Answers to test

II. References

A. Wagner, Willis H. *Modern Carpentry*. South Holland, Illinois: The Goodheart-Wilcox Co., 1976.

B. *Sweet's Catalog File*, New York, New York: McGraw-Hill Information Systems Company.

C. Webster. *Carpentry for the Building Trades*. 2nd ed. St. Louis, Missouri: McGraw-Hill Book Company.

UNIT XII

INSULATION AND DRYWALL

INFORMATION SHEET--SECTION 1

I. Terms and definitions

  A. Sheetrock--Wallboard covered on each side with a special paper which is rough on one side and smooth on the other side

  B. Insulation--Any material used in building construction to prevent heat transfer from outside to inside the building

  C. Fiberglass--A fiber type of glass used in insulation

  D. Rock wool--A wool-like insulation made from molten rock

  E. Polystyrene foam--A solid foam product used in insulation

  F. Drywall--Materials used for wall coverings which are not mixed with water before application

  G. Perfa-tape--A hole punched tape used to seal joints between sheets in drywall construction

  H. Gypsum--The mineral used in wallboard or sheetrock

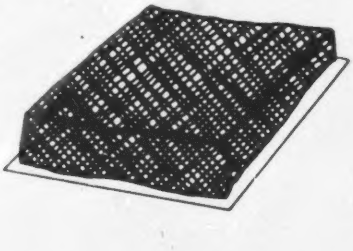
  I. Vapor barrier--A waterproof material that keeps moisture out of a room

II. Types of insulation

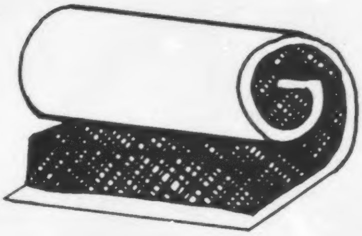
  A. Batts

    1. Small easy to handle units.

    2. Made of fiberglass or rock-wool

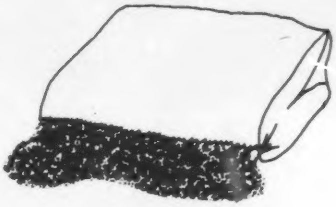


B. Blanket



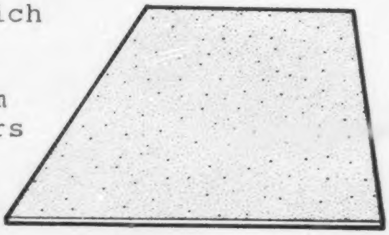
1. Rolls 15 or 23 inches wide
2. Made of fiberglass or rock wool

C. Loose fill



1. Large bags for spreading by machine or hand
2. Made of rock wool, fiberglass or shredded wood products

D. Rigid sheet



1. Usually 4 x 8 sheets which are 1/2 inch thick
2. Made of polystyrene foam or compressed wood fibers

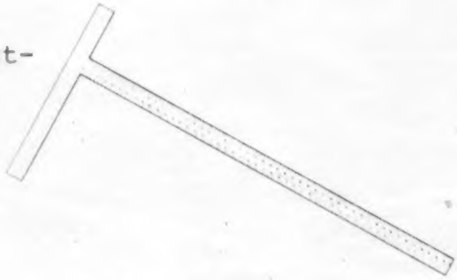
UNIT XII

INSULATION AND DRYWALL

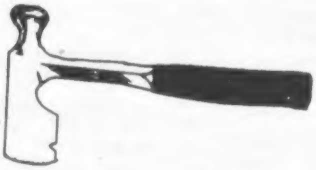
INFORMATION SHEET--SECTION 2

III. Drywall tools

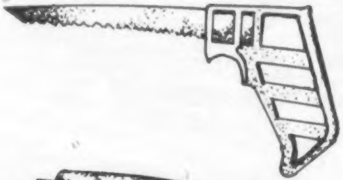
   A. T square--A 48"-square used to square cut sheetrock



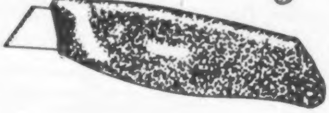
   B. Drywall hammer--A lightweight hammer with a corrugated head



   C. Keyhole saw--A small pointed blade saw used to cut small holes



   D. Utility knife--A knife with replacable blades which is used for cutting sheetrock



IV. Sheetrock

   A. Gypsom filled wallboard

   B. Sizes

      1. 4 x 8 and 4 x 10-foot sheets

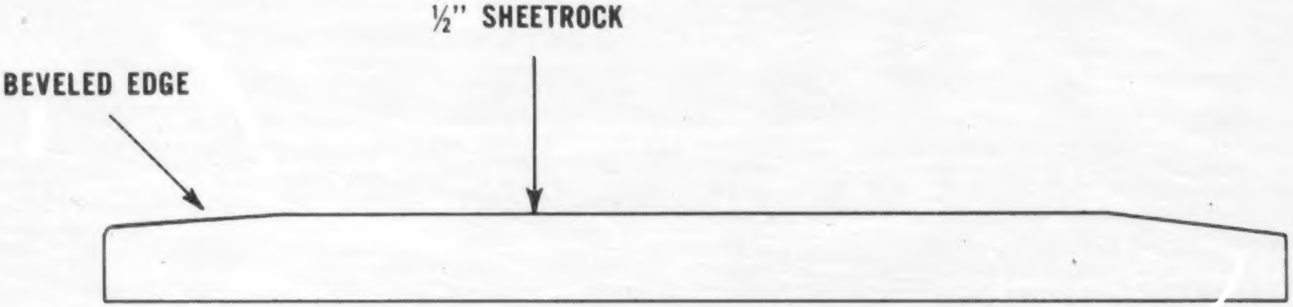
      2. 1/4 thru 1-inch thickness

   C. Edge shapes

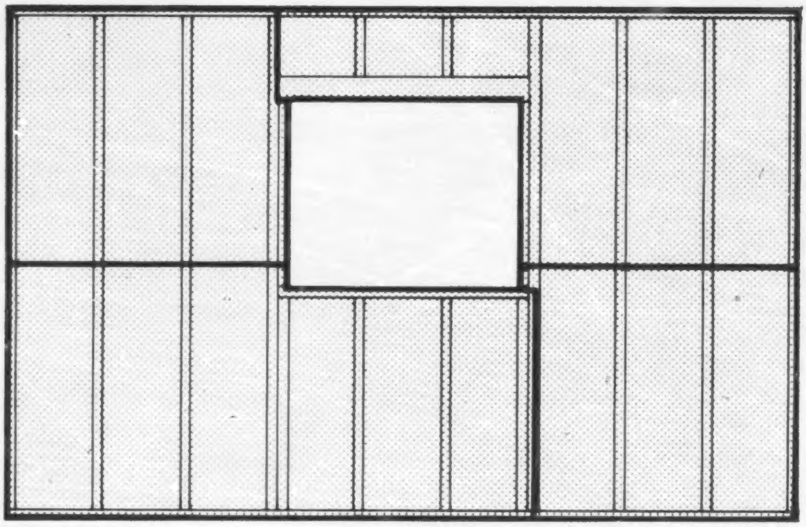
      1. Square

      2. Beveled

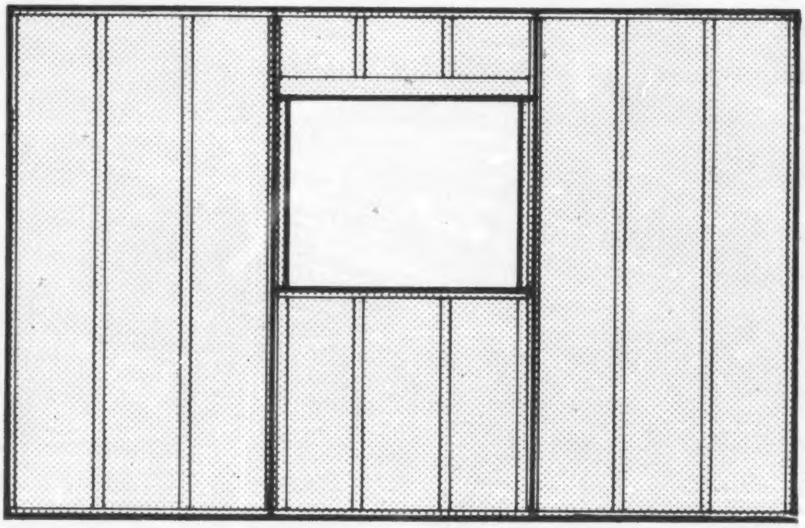
SHEETROCK SHAPE


½" SHEETROCK
BEVELED EDGE

HORIZONTAL SHEETROCK APPLICATION



VERTICAL SHEETROCK APPLICATION



UNIT XII

INSULATION AND DRYWALL

JOB SHEET #1--INSTALL INSULATION

I. Tools and materials required

A. Knife

B. 13 oz. hammer

C. Stapler and staples

D. Tape measure

E. Straight edge

F. Insulation (Batt and blanket type)

G. Duct tape

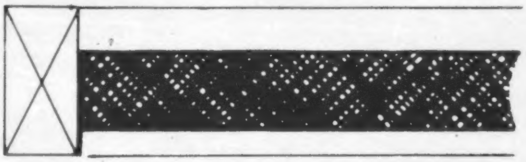
II. Procedure

(Note: All plumbing, electrical, and heating and cooling duct work must be roughed in before insulating.)

A. Cut insulation rolls into eight foot lengths.

(Note: Use the straight edge and knife for cutting.)

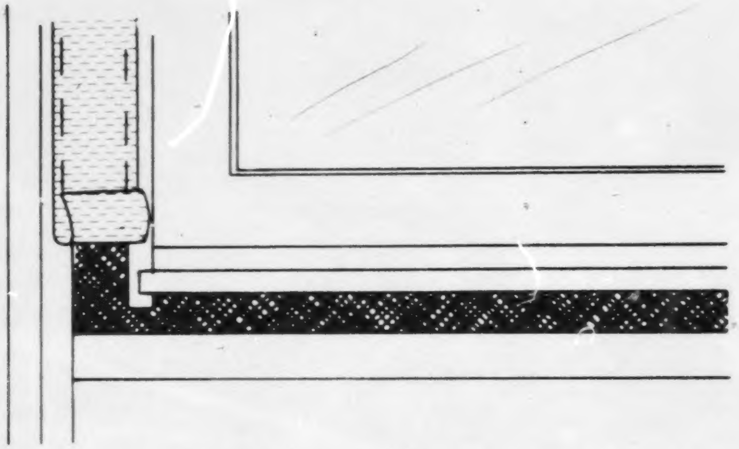
B. Place the eight-foot lengths between the studs and staple in place.



Flange stapled along side of stud to form air space

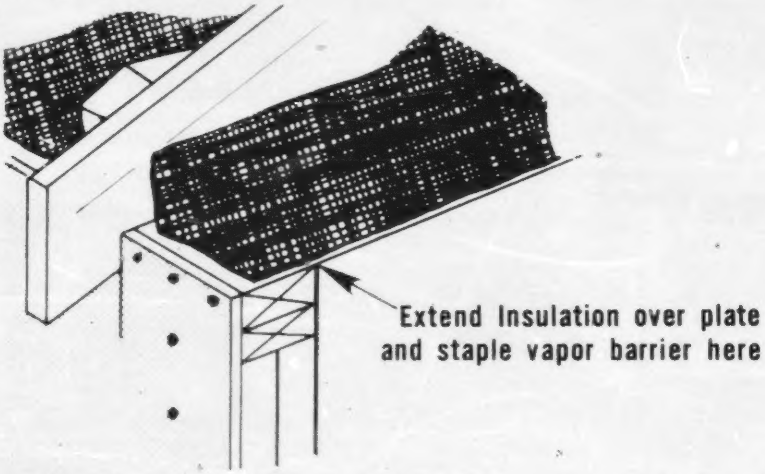
C. Stuff insulation into cracks around doors and windows.

D. Apply tape for a vapor barrier over the cracks.



E. Starting at the wall, staple batts of insulation between the ceiling joists.

(Note: Make sure batts are close together so there are no air spaces.)


Extend Insulation over plate
and staple vapor barrier here

F. Place insulation around any bracing so that the ceiling is solidly covered.

(Note: Vapor barriers should be placed on the room side of the insulation.)

UNIT XII

INSULATION AND DRYWALL

JOB SHEET #2--INSTALL SHEETROCK

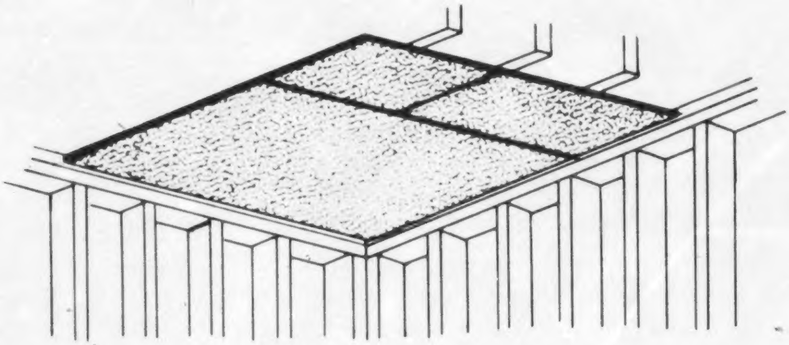
I. Tools and materials required

- A. Drywall hammer
- B. Tape measure
- C. Utility knife
- D. Straight edge
- E. Nail pouch
- F. Nails
- G. Pencil
- H. 2 x 4 lumber

II. Procedure

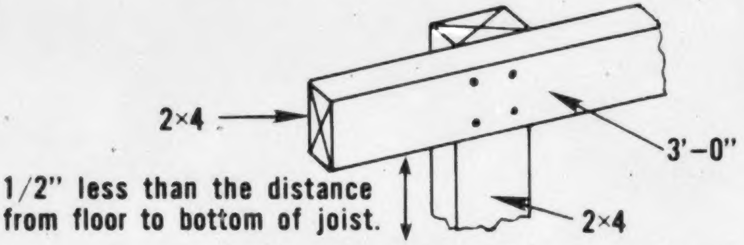
(Note: All electrical, plumbing, heating and cooling duct work, and insulation should be completed before sheetrocking.)

A. Install ceiling sheetrock first at right angles to the ceiling joists.

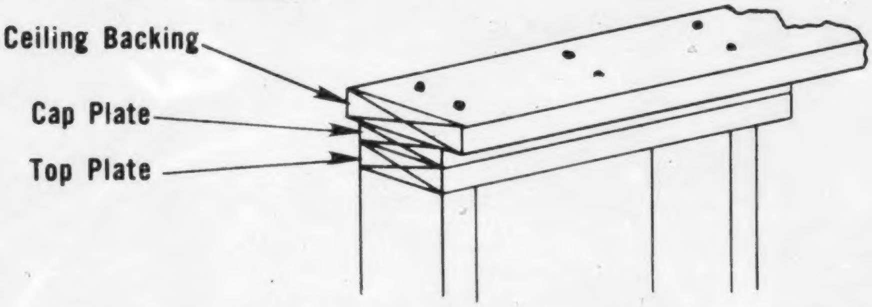


B. Construct two T's to rest the sheetrock on while nailing if several people are not available.

(Note: They should be the distance from the floor to the bottom of the ceiling joists less the thickness of the sheetrock.)


2×4
3'-0"
1/2" less than the distance from floor to bottom of joist.
2×4

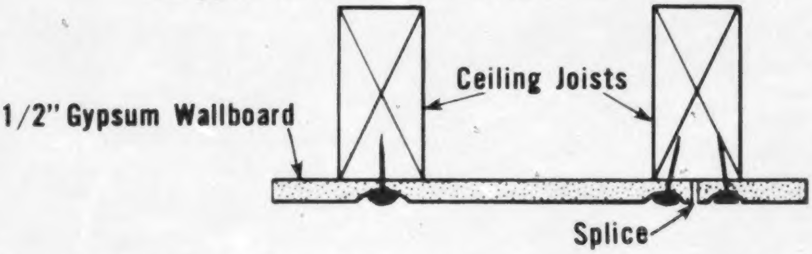
C. Install ceiling backing on the double plate if necessary.


Ceiling Backing
Cap Plate
Top Plate

D. Make sure the sheetrock is firmly against any sheetrock already in place.

E. Nail along the joists about every 6 or 7 inches.

F. All joints should be centered on the joists and staggered with other sheets.

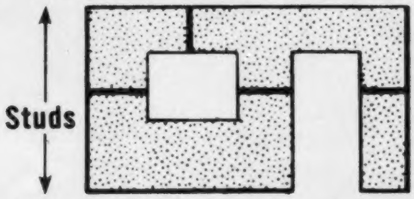

Ceiling Joists
1/2" Gypsum Wallboard
Splice

G. Nail all ceiling sheetrock in place.

(Note: Be sure to cut all holes for electrical boxes.)

H. Nail the first sheet of sheetrock horizontally along the top and in the corner of the wall.

I. Cut out any door or window openings.



J. Nail the bottom sheet snugly in place against the top sheet.

K. Nail all remaining sheets in place with joints centered on studs and staggered.

(Note: Carefully measure and cut out all electrical box locations.)

UNIT XII

INSULATION AND DRYWALL

UNIT TEST--SECTION 1

1. Match the terms associated with insulation and drywall to the correct definition by writing the number of each term on the right in the correct blank on the left.

____a. Wallboard covered on each side with a special paper which is rough on one side of the sheet and smooth on the other

b. Any material used in building construction to prevent heat transfer from outside to inside the building

____c. A fiber type of glass used in insulation

____d. A wool-like insualtion made from molten rock

____e. A solid foam product used in insulation

____f. Materials used for wall coverings which are not mixed with water

____g. A hole punched tape used to seal joints between sheets in drywall construction

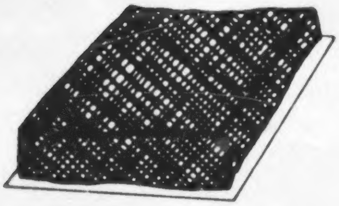
____h. The mineral used in wallboard or sheetrock

____i. A waterproof material that keeps moisture out of a room

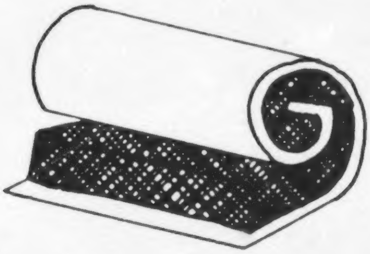
1. Drywall
2. Fiberglass
3. Vapor barrier
4. Sheetrock
5. Insulation
6. Rock wool
7. Perfa-tape
8. Gypsum
9. Polystyrene foam

2. Identify the types of insulation used in construction by writing the name of each in the blanks below.

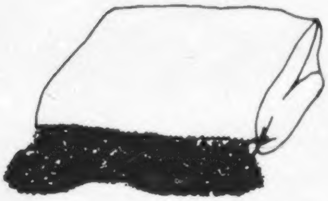
Rigid sheet
Batt
Loose fill
Blanket



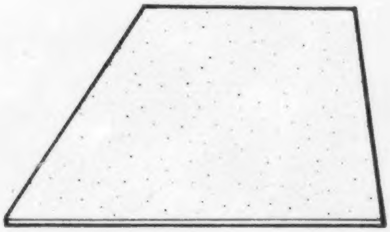
a. ______________________



b. ______________________



c. ______________________



d. ______________________

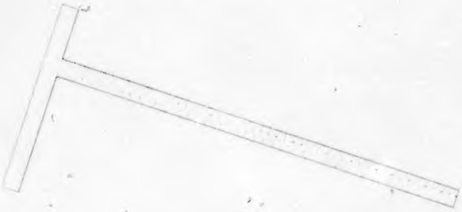
UNIT XII

INSULATION AND DRYWALL

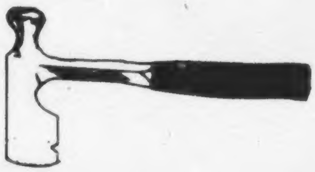
UNIT TEST--SECTION 2

3. Identify the drywall tools used in construction by writing the name of each in the blank below.

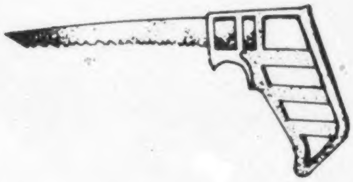
Keyhole saw
Drywall hammer
T-square
Utility knife



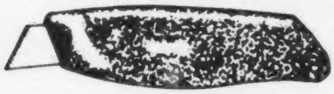
a. ____________________



b. ____________________



c. ____________________



d. ____________________

4. Point out the construction of sheetrock by circling the correct answer for each statement below.

   a. Sheetrock is filled with (polystyrene, gypsum).

   b. Sheetrock can be purchased in (any size, 4 x 8) sheets.

   c. The edges of sheetrock are usually (rounded, beveled).

5. Demonstrate the ability to:

   a. Install insulation

   b. Install sheetrock

   (Note: If these activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

UNIT XII

INSULATION AND DRYWALL

ANSWERS TO UNIT TEST
SECTION 1

1. a. 4
   b. 5
   c. 2
   d. 6
   e. 9
   f. 1
   g. 7
   h. 8
   i. 3

2. a. Batt
   b. Blanket
   c. Loose fill
   d. Rigid sheet

SECTION 2

3. a. T-square
   b. Drywall hammer
   c. Keyhole saw
   d. Utility knife

4. a. gypsum
   b. 4 x 8
   c. beveled

5. Evaluated to the satisfaction of the instructor.